

**Plaintiffs' Supplemental
Exhibit 105
(Full Cross Dep. Tr.)**

CONFIDENTIAL

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA

---oOo---

IN RE: FACEBOOK, INC.,
CONSUMER PRIVACY USER
PROFILE LITIGATION

MDL No. 2843

Case No. 18-md-02843-VC-JSC

This document relates to:

ALL ACTIONS

CONFIDENTIAL

REMOTE VIDEOTAPED DEPOSITION OF
SIMON CROSS
30(B)(6) DESIGNEE, FACEBOOK, INC.

MONDAY, MAY 9, 2022

REPORTED BY: HOLLY THUMAN, CSR No. 6834, RMR, CRR
JOB NUMBER 5210141

Page 1

CONFIDENTIAL

--o0o--

Remote videotaped deposition of SIMON CROSS, taken by the Plaintiffs, with the witness located in London, United Kingdom, commencing at 3:49 P.M. London Daylight Time, on MONDAY, MAY 9, 2022, before me, HOLLY THUMAN, CSR, RMR, CRR.

--o0o--

APPEARANCES

(ALL APPEARANCES REMOTE)

FOR THE PLAINTIFFS:

KELLER ROHRBACK LLP

1201 Third Avenue, Suite 3200

Seattle, Washington 98101

By: CARI LAUFENBERG, Attorney at Law

CLaufenberg@kellerrohrback.com

By: ADELE DANIEL, Attorney at Law

ADaniel@kellerrohrback.com

By: DEREK W. LOESER, Attorney at Law

DLoeser@kellerrohrback.com

By: EMMA WRIGHT

EWright@kellerrohrback.com

By: DAVID KO, Attorney at Law

DKo@kellerrohrback.com

BLEICHMAR FONTI & AULD

555 12th Street, Suite 1600

Oakland, California 94607

By: LESLEY E. WEAVER, Attorney at Law

lweaver@bfalaw.com

By: MATTHEW MELAMED, Attorney at Law

mmelamed@bfalaw.com

(CONTINUED)

Page 2

CONFIDENTIAL

APPEARANCES (Continued)
(ALL APPEARANCES REMOTE)

FOR DEFENDANT FACEBOOK, INC.:

GIBSON, DUNN & CRUTCHER
1801 California Street, Suite 4200
Denver, Colorado 80220
By: ROBERT BLUME, Attorney at Law
RBlume@gibsondunn.com

GIBSON, DUNN & CRUTCHER
1881 Page Mill Road
Palo Alto, California
By: PHUNTZO WANGDRA, Attorney at Law
PWangdra@gibsondunn.com

GIBSON DUNN & CRUTCHER LLP
2001 Ross Avenue, Suite 2100
Dallas, Texas 75210-2911
By: MATT BUONGIORNO, Attorney at Law
MBuongiorno@gibsondunn.com
By: HANNAH REGAN-SMITH, Attorney at Law
HRegan-Smith@gibsondunn.com

GIBSON DUNN & CRUTCHER LLP
811 Main Street, Suite 3000
Houston, Texas 77002
By: JOSIAH CLARKE, Attorney at Law
JClarke@gibsondunn.com

ALSO PRESENT:

IAN CHEN, In-House Counsel, Meta Platforms

ROSE RING, In-House Counsel, Meta Platforms

JOHN MACDONELL, Videographer

DANIEL GARRIE, Special Master

CONFIDENTIAL

I N D E X

INDEX OF EXAMINATIONS

| EXAMINATION BY: | PAGE |
|-----------------|------|
| MR. LOESER | 6 |

--o0o--

EXHIBITS MARKED FOR IDENTIFICATION

| NO. | DESCRIPTION | PAGE |
|-------------|---|------|
| Exhibit 332 | September 27, 2013, email chain, Konstantinos Papamiltiadis to Allison Hendrix and others (FB-CA-MDL-00198455 through -457) | 75 |
| Exhibit 333 | December 9, 2013, message summary, David Poll to Eddie O'Neil, David Poll (FB-CA-MDL-02140404 to -414) | 92 |
| Exhibit 334 | Presentation deck, Login v4 (+PS12n) - 1/24/2014 update (FB-CA-MDL-01685319.ppt) | 125 |
| Exhibit 335 | Document provided at deposition, "Simon's in-depo notes" | 153 |
| Exhibit 336 | October 31, 2013, email Simon Cross to Zhen Fang (FB-CA-MDL-00200051) | 173 |
| Exhibit 337 | Changes made to v2 at f8**User Trust** (FB-CA-MDL-02145706 through -711) | 176 |

PREVIOUSLY MARKED EXHIBITS REFERENCED

| NO. | DESCRIPTION | PAGE |
|-------------|-------------------|------|
| Exhibit 330 | Previously marked | 18 |
| Exhibit 98 | Previously marked | 115 |

--o0o--

CONFIDENTIAL

1 MONDAY, MAY 9, 2022

2 3:49 P.M.

3 --o0o--

4 PROCEEDINGS

5 --o0o--

6 THE VIDEO OPERATOR: We're on the record. 15:49:21

7 It's 3:49 P.M. London time on May 9, 2022. This is 15:49:22

8 the deposition of Simon Cross, and we're here in 15:49:29

9 the matter of Facebook Consumer Privacy User 15:49:32

10 Profile Litigation. 15:49:35

11 I'm John MacDonell, the videographer, with 15:49:39

12 Veritext. 15:49:42

13 Before the reporter swears the witness, 15:49:43

14 would Counsel please identify themselves, beginning 15:49:45

15 with the noticing party, please. 15:49:48

16 MR. LOESER: Good morning. This is 15:49:51

17 Derek Loeser from Keller Rohrbach for Plaintiffs. 15:49:52

18 With me is Adele Daniel and Cari Laufenberg and 15:49:56

19 Emma Wright, also from Keller Rohrbach. 15:50:00

20 MR. BLUME: This is Rob Blume from 15:50:03

21 Gibson Dunn on behalf of Facebook. With me is 15:50:05

22 Hannah Regan-Smith, Ian Chen, Josiah Clarke, 15:50:08

23 Matt Buongiorno, and Phuntso Wangdra. 15:50:17

24 MS. WEAVER: And good morning. It's 15:50:23

25 Lesley Weaver from Bleichmar Fonti & Auld, also on 15:50:24

Page 5

Page 6

CONFIDENTIAL

1 Q. And do you recall what those matters were 15:51:30
2 in which you were deposed? 15:51:32

3 A. The first was some -- a matter relating to 15:51:34
4 '643, the '643 case, and then the second was a -- I 15:51:38
5 don't recall exactly, but it's the -- the 15:51:45
6 Washington District Attorney's -- Washington D.C., 15:51:48
7 I think, case against -- against Meta relating to 15:51:52
8 some of the matters -- 15:51:56

9 (Reporter requested clarification.) 15:52:04

10 THE WITNESS: -- relating to the, I 15:52:04
11 recall, the Cambridge Analytica matter. 15:52:05

12 BY MR. LOESER: 15:52:08

13 Q. And the '643 matter was against Facebook 15:52:10
14 as well. Is that right? 15:52:13

15 A. That's correct, yes. 15:52:16

16 Q. Okay. Well, you've been through this 15:52:18
17 before, so -- but I'll just remind you of the basic 15:52:20
18 rules, which are really designed to have a clear 15:52:23
19 record. 15:52:26

20 As the Special Master indicated, it's very 15:52:26
21 important that we're not talking at the same time 15:52:28
22 and that we let the court reporter take down what 15:52:30
23 we are saying. 15:52:32

24 If I ask a question and you don't 15:52:33
25 understand the question, could you please ask me to 15:52:35

CONFIDENTIAL

1 restate it, and I'll attempt to do that. 15:52:38

2 And when you're answering questions, it's 15:52:42

3 important to answer verbally, so that would be a 15:52:44

4 good example. Shaking your head doesn't make it 15:52:47

5 onto the record, but Yes/No does. 15:52:50

6 So could we make sure that you answer 15:52:52

7 verbally? 15:52:54

8 A. I understand. 15:52:55

9 Q. And if you do answer one of my questions, 15:52:56

10 I will assume you understood the question. 15:52:59

11 Is that a fair assumption? 15:53:01

12 A. That's fine, yes. 15:53:04

13 Q. And over the course of the day, your 15:53:06

14 attorney may object to questions that I ask. And 15:53:10

15 when he does so, unless he instructs you not to 15:53:12

16 answer the question, please wait for him to finish 15:53:15

17 objecting and then go ahead and answer the 15:53:17

18 question. 15:53:19

19 Do you understand that? 15:53:20

20 A. I understand that, yes. 15:53:21

21 Q. And we'll be going for a while, and if at 15:53:23

22 any point you need a break, please just ask for 15:53:26

23 one, and I will accommodate that the best I can. 15:53:28

24 The only caveat is if there is a question 15:53:31

25 that is pending, I will ask you to finish the 15:53:35

CONFIDENTIAL

1 question before we take a break. 15:53:37

2 Is that understood? 15:53:40

3 A. Yeah. I understand. 15:53:41

4 Q. And sometimes if we're -- if there's a 15:53:42

5 series of questions and I'm almost through the 15:53:44

6 series, I'll ask if it's okay if we just finish the 15:53:46

7 series before taking a break. 15:53:49

8 Does that sound fair to you? 15:53:51

9 A. That sounds fair. 15:53:53

10 Q. Okay. And as the Special Master 15:53:54

11 indicated, he will be observing today, and so he 15:53:55

12 may come on camera at some point to discuss 15:53:58

13 matters. 15:54:01

14 And it's important there as well that we 15:54:01

15 make sure that he has the time and space to talk 15:54:03

16 and that the record is clear so that we're not 15:54:06

17 talking at the same time. 15:54:08

18 Is that fair? 15:54:09

19 A. Yep. That's fair. 15:54:10

20 Q. Okay. And, Mr. Cross, is there anything 15:54:12

21 that may impact your ability to testify honestly 15:54:14

22 and truthfully today? 15:54:18

23 A. Not that I'm aware of. 15:54:20

24 Q. Okay. No medications or anything of that 15:54:22

25 sort that may interfere with your recall or ability 15:54:24

CONFIDENTIAL

1 to testify? 15:54:29

2 A. No. I'm not on any medication, no. 15:54:29

3 Q. And, Mr. Cross, you're located in London? 15:54:32

4 A. That's correct. 15:54:36

5 Q. And is that where you -- and I gather you 15:54:37

6 work for -- for Meta. Right? 15:54:40

7 A. That's correct, yeah. I still work for 15:54:44

8 Meta and live in London. 15:54:46

9 Q. Okay. And so how often do you come to the 15:54:52

10 United States as part of your work? 15:54:54

11 A. In the last two years, not at all, sadly. 15:54:56

12 Before that, I used to come several times a year. 15:55:02

13 Q. Okay. And do you think that going forward 15:55:06

14 you'll be coming stateside more often? 15:55:08

15 A. It's too early to say how much -- how much 15:55:13

16 international we'll be doing. I doubt I'll be 15:55:15

17 doing it as much as we used to. 15:55:18

18 Q. And, sir, if there were a trial in this 15:55:20

19 case, would you be willing to fly across the ocean 15:55:22

20 to attend the trial? 15:55:25

21 A. I have to consult with my counsel on 15:55:29

22 whether or not that would be an appropriate thing 15:55:32

23 to do. 15:55:34

24 Q. Okay. And are you communicating -- and 15:55:35

25 this is -- you know, we're in this new world of 15:55:39

Page 10

CONFIDENTIAL

1 remote depositions, so there are some things we 15:55:41
2 need to sort out for that as well. 15:55:43
3 You are not actively communicating with 15:55:46
4 anybody during the time that I'm asking you these 15:55:47
5 questions, are you? 15:55:50
6 A. No. I am not communicating with anyone. 15:55:51
7 Q. Okay. No texting or messaging or anything 15:55:54
8 of that sort happening? 15:55:57
9 A. No. My phone is screen side down on the 15:55:59
10 desk, and I've cleared my computer. 15:56:02
11 Q. Excellent. Thank you. 15:56:07
12 And, Mr. Cross, did you prepare any notes 15:56:09
13 or other materials to assist you with your 15:56:12
14 testimony today? 15:56:14
15 A. I have a document that I prepared that 15:56:17
16 includes some facts to help me answer -- I think 15:56:20
17 that might come up to help me answer your 15:56:25
18 questions, but that's all I've prepared. 15:56:27
19 Q. And do you have that with you today, sir? 15:56:31
20 A. I do, yes. 15:56:33
21 Q. And do you intend to refer to that during 15:56:35
22 your testimony today? 15:56:39
23 A. If -- if you ask me a question and I can't 15:56:42
24 remember a fact -- a specific fact I may have noted 15:56:44
25 down, then I was planning to refer to that, yes, as 15:56:50

Page 11

CONFIDENTIAL

1 to best answer your questions. 15:56:54

2 MR. LOESER: Thank you. 15:56:57

3 And, Counsel, Mr. Blume, we would like a 15:56:57

4 copy of those notes. And we don't need to go off 15:57:00

5 the record right now to get them, but we would like 15:57:03

6 them as soon as you can get them to us during the 15:57:06

7 deposition, not after. 15:57:08

8 Could you accommodate that request, 15:57:10

9 please? 15:57:13

10 MR. BLUME: Noted. 15:57:14

11 BY MR. LOESER: 15:57:19

12 Q. And since your counsel noted that request 15:57:19

13 but did not actually tell me he was going to do it, 15:57:21

14 this is something I'll bring up again in a little 15:57:24

15 bit just to make sure we actually get those notes 15:57:27

16 during the deposition today. Okay? 15:57:30

17 And, Mr. Cross, you indicated that you 15:57:33

18 currently work for Meta. Is that right? 15:57:35

19 A. That's correct. I work for Meta -- the 15:57:41

20 U.K. arm of Meta. Meta Platforms, Inc., has a U.K. 15:57:44

21 arm. 15:57:50

22 Q. Okay. And over the course of the day, 15:57:51

23 I'll be referring to Facebook frequently. And when 15:57:53

24 I refer to Facebook and ask you a question about 15:57:55

25 Facebook, will you be drawing any distinction 15:57:58

Page 12

| | | |
|----|---|----------|
| 1 | between Meta and Facebook when you answer? | 15:58:00 |
| 2 | A. Whether or not I need to do so may depend | 15:58:09 |
| 3 | on the context of the question. So I can ask for | 15:58:11 |
| 4 | clarification if needed. | 15:58:16 |
| 5 | Q. Okay. That would be helpful. I | 15:58:18 |
| 6 | appreciate that. | 15:58:20 |
| 7 | Mr. Cross, how long have you been employed | 15:58:21 |
| 8 | at -- and I'm going to say Facebook, and I mean | 15:58:23 |
| 9 | both Facebook and Meta. | 15:58:27 |
| 10 | A. I joined the company in September 2010. | 15:58:30 |
| 11 | Q. And I'm not going to take the time during | 15:58:38 |
| 12 | today's deposition to go through your LinkedIn | 15:58:40 |
| 13 | résumé in detail, but I would ask you to describe | 15:58:44 |
| 14 | the major responsibilities that you've had over | 15:58:47 |
| 15 | your time at Facebook and Meta. | 15:58:49 |
| 16 | A. Sure. The first part of my career was | 15:58:54 |
| 17 | working on the Platform Partnerships team, first as | 15:58:59 |
| 18 | a partner engineer, then as a -- for a short time | 15:59:04 |
| 19 | as a developer advocate, and then for a short time | 15:59:07 |
| 20 | as a strategic partnership manager. | 15:59:10 |
| 21 | In -- that was from September 2010 to | 15:59:12 |
| 22 | January 2014. | 15:59:18 |
| 23 | From January 2014 to the end of 2015, I | 15:59:21 |
| 24 | was a product manager on the Facebook Platform | 15:59:25 |
| 25 | team. | 15:59:28 |

CONFIDENTIAL

1 your testimony today? 16:00:53

2 A. I spoke to some people currently employed 16:00:55

3 by Meta to understand their experiences relating to 16:00:57

4 this matter, yes. 16:01:05

5 Q. And who did you speak with? 16:01:07

6 A. I spoke with Eddie O'Neil, Ime Archibong, 16:01:11

7 Steven Elia, Dan Xu, Allison Hendrix, Eugene 16:01:18

8 Zarakhovsky, Francisco Varela, and Amit Sangani. 16:01:25

9 Q. And were those conversations all of 16:01:34

10 different amounts of time? 16:01:37

11 Were there some people you spoke to more 16:01:38

12 than others? 16:01:40

13 Describe in a little more detail, if you 16:01:41

14 can. 16:01:43

15 A. I spoke to each of those people once for 16:01:45

16 between 30 and 45 minutes each. The conversation 16:01:51

17 between Dan and Steven was one conversation with 16:01:57

18 both of them on the call. 16:02:01

19 Q. And were any attorneys present during any 16:02:09

20 of those conversations? 16:02:11

21 A. Yes. Attorneys for Facebook/Meta, were 16:02:14

22 present for all of those conversations, yes. 16:02:18

23 Q. Okay. And who were the attorneys that 16:02:22

24 were present, if you know their names? 16:02:23

25 A. There were a number of people on the call, 16:02:29

Page 15

CONFIDENTIAL

1 so I probably can't give you everybody who was 16:02:30
2 there, but a combination of Rob -- Mr. Blume, 16:02:34
3 Ian Chen, and Matt -- I'm not sure I'm going to 16:02:41
4 pronounce this correctly -- Buongiorno. 16:02:49
5 Sorry, Matt, if you're listening. I 16:02:52
6 apologize if I got that wrong. 16:02:55
7 Q. Thank you. Good enough to identify him. 16:02:59
8 And, sir, did you review any of the 16:03:01
9 pleadings or filings that have been made in this 16:03:03
10 case to prepare for your testimony today? 16:03:06
11 A. I have, yes. 16:03:09
12 Q. And do you recall what specifically you 16:03:11
13 reviewed? 16:03:13
14 A. My attorneys sent over a -- a set of 16:03:16
15 documents for me to review in advance of this 16:03:21
16 testimony, and I also received a set of documents, 16:03:25
17 I think, from you folks; around 36 documents, I 16:03:28
18 think. 16:03:34
19 Q. And were you sent a stack of documents 16:03:34
20 from your attorneys? 16:03:36
21 Were they assembled in a binder or 16:03:38
22 presented to you in some other manner like that? 16:03:40
23 A. All of the documents I've reviewed to 16:03:43
24 prepare for today I've reviewed electronically. 16:03:46
25 Q. Okay. In a single folder? 16:03:50

Page 16

CONFIDENTIAL

1 Were they delivered in a single folder, or 16:03:53
2 was it a series of separate files? 16:03:55
3 A. I received a link to a Google Drive folder 16:03:58
4 that contained a number of files. 16:04:02
5 Q. Thank you. 16:04:04
6 MR. LOESER: And, Counsel, as you know, 16:04:08
7 we've asked for Facebook to provide us with 16:04:09
8 identification of the materials given to the 16:04:11
9 witness to prepare for his testimony, and we would, 16:04:13
10 again, ask that you do that with respect to this 16:04:15
11 deposition. 16:04:18
12 (Reporter requested clarification.) 16:04:18
13 MR. BLUME: I understood the request. 16:04:25
14 BY MR. LOESER: 16:04:28
15 Q. And, Mr. Cross, you also indicated that 16:04:29
16 you reviewed some materials that you believe that 16:04:31
17 the plaintiffs sent over to you. Is that correct? 16:04:33
18 A. Yes. That's my understanding. There was 16:04:37
19 a set of documents that was sent over for me to 16:04:41
20 read in advance of today's testimony. 16:04:46
21 Q. And did you review those documents? 16:04:49
22 A. I did review those documents, yes. 16:04:54
23 Q. And how long would you say you spent 16:05:00
24 reviewing the documents that were delivered to you 16:05:03
25 from the plaintiffs? 16:05:05

CONFIDENTIAL

1 A. On the order of eight to ten hours or so. 16:05:12

2 Q. Good. Thank you. 16:05:20

3 And were those all documents that you had 16:05:21

4 seen before, or were there some new things in there 16:05:23

5 for you? 16:05:26

6 A. That list contained documents that I 16:05:29

7 hadn't seen before. 16:05:30

8 Q. Including documents that were -- that were 16:05:33

9 produced by Facebook in this case. 16:05:36

10 Let me ask that slightly differently. 16:05:40

11 Including documents that were internal 16:05:42

12 correspondence and other materials that were 16:05:43

13 created by Facebook? 16:05:45

14 A. That's my understanding, yes. 16:05:48

15 MR. LOESER: So if we could mark -- 16:05:55

16 actually, we don't need to mark. If we could show 16:05:56

17 Mr. Cross what has been previously marked 16:06:00

18 Exhibit 330, I believe. 16:06:02

19 (Previously marked Exhibit 330 was 16:06:03

20 presented to the witness.) 16:06:03

21 BY MR. LOESER: 16:06:04

22 Q. This should come up on your screen. 16:06:04

23 Again, we're at the mercy of the great Internet 16:06:07

24 here, but you will see the deposition notice that's 16:06:10

25 been served in this case by the plaintiffs on 16:06:13

CONFIDENTIAL

1 Facebook. 16:06:16

2 Let me know when you can see that 16:06:17

3 document. 16:06:19

4 MR. BLUME: I believe that's Exhibit 332. 16:06:26

5 MR. LOESER: We have it as Exhibit 330. 16:06:29

6 Prior Exhibit 330, yeah. This isn't a new exhibit, 16:06:34

7 Rob, sorry. This is -- it was marked during 16:06:38

8 Ms. Hendrix's deposition. I'll try and make 16:06:40

9 that -- 16:06:43

10 MR. BLUME: On the screen that I'm looking 16:06:44

11 at, it says "332" on the exhibit sticker. 16:06:45

12 MR. LOESER: Refresh your screen. My 16:06:52

13 technology expert tells me that you need to refresh 16:06:55

14 your screen. 16:06:58

15 It should be corrected now. 16:07:05

16 MR. BLUME: Yes, with thanks to your 16:07:08

17 technology expert. Appreciate it. 16:07:09

18 BY MR. LOESER: 16:07:12

19 Q. So, Mr. Cross, you're looking at what's 16:07:12

20 called "Plaintiff's Second Amended Notice of 16:07:16

21 Deposition of Defendant Facebook, Inc., Pursuant to 16:07:18

22 Federal Rule of Civil Procedure 30(b)(6)." 16:07:20

23 Have you seen this notice before? 16:07:25

24 A. Yes. 16:07:29

25 Q. And you understand that you have been 16:07:31

CONFIDENTIAL

1 designated to testify as to certain topics in 16:07:33
2 response to this notice. 16:07:36

3 A. That's my understanding, yes. 16:07:40

4 Q. Okay. And if you could turn -- attached 16:07:42
5 to the notice, there is an appendix. And if you 16:07:45
6 turn all the way to page 13, or click through to 16:07:48
7 that page or whatever you would need to do on your 16:07:51
8 screen. I'm turning to page 13, but ... 16:07:54

9 A. I have page 13 in front of me. 16:08:02

10 Q. Okay. And on page 13, there are three 16:08:04
11 topics. The bottom two, there's Topic 6 and 16:08:07
12 Topic 7. 16:08:13

13 Do you see that? 16:08:14

14 A. I see that. 16:08:14

15 Q. And is it your understanding that you have 16:08:15
16 been designated to testify on behalf of Facebook 16:08:17
17 with regard to Topics 6 and 7? 16:08:23

18 A. That's correct. 16:08:27

19 Q. Okay. And as we get into these topics in 16:08:28
20 more detail, your counsel will probably want to 16:08:31
21 clarify the -- the particular matters within those 16:08:34
22 paragraphs that you are prepared to testify about, 16:08:37
23 but we can get to that later. 16:08:40

24 But for present purposes, what's important 16:08:43
25 is that these are the two topics that you 16:08:46

Page 20

CONFIDENTIAL

1 understand that you are here to testify about. 16:08:48

2 A. Those are the two topics I understand I'm 16:08:53

3 here to testify about. 16:08:55

4 Q. And do you understand that by being 16:08:58

5 designated to testify about these topics, you are 16:09:00

6 authorized to speak for Meta/Facebook on the 16:09:04

7 specified matters? 16:09:08

8 A. That's -- that's my understanding, yes. 16:09:11

9 Q. And you understand that your testimony, 16:09:14

10 which is under oath, is binding on Meta. 16:09:15

11 A. That's my understanding, yes. 16:09:20

12 Q. Okay. And I'm going to use Meta and 16:09:22

13 Facebook interchangeably here. I mean the same 16:09:24

14 thing every time, and, like you said before, if 16:09:26

15 there's a distinction that needs to be drawn, you 16:09:29

16 are going to draw that for me. 16:09:32

17 A. I will ask for clarification where I think 16:09:33

18 one is needed if the entities need to be 16:09:36

19 distinguished, yes. 16:09:38

20 Q. And, sir, do you understand that the time 16:09:40

21 period at issue in this litigation is 2007 to the 16:09:42

22 present? 16:09:46

23 A. That's my understanding, yes. 16:09:48

24 Q. Okay. So all of my questions will concern 16:09:50

25 that time period unless I specify something 16:09:53

CONFIDENTIAL

1 narrower. 16:09:55

2 Is that fair? 16:09:56

3 A. That's fair. 16:09:57

4 Q. So before we get into the specifics of 16:10:06

5 each of these topics, I think it would be important 16:10:08

6 to have a conversation about basic terminology to 16:10:10

7 make sure that when you testify, the record is 16:10:13

8 clear as to what you're saying. 16:10:14

9 Is that fair? 16:10:16

10 A. I'm happy to make sure we can align on 16:10:18

11 terminology, yes. 16:10:22

12 Q. Okay. Some of it will seem very basic to 16:10:23

13 you, but trust me, it's important for the court and 16:10:25

14 for the record and, if there's a jury in this case, 16:10:27

15 for the jury to understand and hear from Facebook 16:10:30

16 what these terms mean. 16:10:33

17 So if you'll bear with me, I'll run 16:10:34

18 through some of these basic concepts. 16:10:36

19 To start, what is an "app"? 16:10:39

20 A. An app is an entity in Facebook's systems 16:10:43

21 that has the ability to access information via the 16:10:53

22 Graph API. 16:11:00

23 There was a broader definition of "app" 16:11:01

24 that is pursuant to mobile applications and so on, 16:11:05

25 but an app in the Facebook ecosystem is a -- an 16:11:08

Page 22

CONFIDENTIAL

1 entity that -- that has an app ID and can access 16:11:13

2 the Graph API in some way. 16:11:18

3 Q. And there are third-party apps and 16:11:22

4 Facebook apps. Correct? 16:11:24

5 A. Can you help me understand what you mean 16:11:28

6 by "third-party apps"? 16:11:29

7 Q. Yeah. I'm glad you asked. 16:11:31

8 So Facebook creates apps itself for the 16:11:34

9 platform. Right? 16:11:36

10 A. There are some apps that Facebook 16:11:41

11 engineers, Facebook, Inc., would have built that 16:11:45

12 may call the Platform APIs, yes. 16:11:49

13 Q. And then there are -- I'll call them 16:11:54

14 "third parties," but entities not owned or 16:11:57

15 affiliated with Facebook that also create apps. 16:11:59

16 A. The Facebook Platform allowed developers 16:12:04

17 to create -- third parties to create applications 16:12:07

18 on the Facebook Platform, yes. 16:12:10

19 Q. Okay. And so over the course of our 16:12:12

20 conversation today, when I refer to "third-party 16:12:14

21 apps," that is what I will be referring to. 16:12:16

22 Is that fair? 16:12:19

23 A. So to be clear, you're referring to a 16:12:20

24 third party that, in this context, is an 16:12:23

25 application developed by an entity other than 16:12:28

CONFIDENTIAL

1 Facebook, Inc., or Meta Platforms? 16:12:31

2 Q. Yes. Thank you. That's a good 16:12:36

3 clarification. 16:12:38

4 And you used some other terms in your 16:12:39

5 answer, and I guess we may as well define those as 16:12:42

6 well. 16:12:46

7 What is the "Facebook Platform"? 16:12:46

8 A. The Facebook Platform is a collection of 16:12:50

9 technologies that enable developers to build 16:12:57

10 applications that could interact with the Facebook 16:13:01

11 product, Facebook.com or the Facebook product as 16:13:08

12 a -- as a regular user would think of it. 16:13:14

13 Q. And help me understand: What is the 16:13:19

14 "Facebook product"? 16:13:21

15 A. So the Facebook product, by that, I'm 16:13:25

16 referring to, you know, the website Facebook.com 16:13:28

17 and the Facebook iOS and Android apps, for example, 16:13:32

18 and the experience you have when using the 16:13:39

19 Facebook.com website or the Facebook mobile apps on 16:13:43

20 iOS and Android. 16:13:48

21 Q. Thank you for that. 16:13:52

22 And, sir, what is the "Facebook 16:13:54

23 Social Graph"? 16:13:55

24 A. My understanding is that the Social Graph 16:13:57

25 would be a term used to explain the relationships 16:13:59

CONFIDENTIAL

1 between users of the Facebook product; who is 16:14:06

2 friends with who. 16:14:11

3 Q. Okay. And we'll have some more specific 16:14:13

4 questions about how that functions later. 16:14:16

5 What is an "API"? 16:14:18

6 A. An API, which stands for application 16:14:24

7 programming interface, is a way for -- a technical 16:14:27

8 means by which information can be exchanged between 16:14:34

9 entities. 16:14:37

10 Q. And are you familiar with the term 16:14:42

11 "high-signal APIs"? 16:14:44

12 A. I'm not familiar with that term. 16:14:47

13 Q. Are some APIs considered more sensitive in 16:14:51

14 terms of the information they provide than others? 16:14:53

15 A. Can you help me understand in which 16:14:58

16 context you are referring to? My answer with APIs 16:15:00

17 was a general concept. 16:15:03

18 Q. Sure. In the context of an app obtaining 16:15:06

19 information about Facebook users through APIs, are 16:15:10

20 there some APIs that are considered more sensitive 16:15:13

21 than others in terms of the information that's 16:15:17

22 being gathered? 16:15:22

23 A. So I would -- yeah, I think it's fair to 16:15:27

24 say that there are some APIs which are considered 16:15:31

25 more sensitive than others, yes. 16:15:37

CONFIDENTIAL

1 Q. And why is that? What is the type of 16:15:41
2 information that would be considered more sensitive 16:15:43
3 in that context? 16:15:46
4 A. So it depends on the definition of 16:15:48
5 "sensitive." 16:15:52
6 Can you help me understand what you mean 16:15:52
7 by "sensitive"? 16:15:54
8 Q. Yes. I mean about the Facebook user data 16:15:55
9 and information that is accessed via an API. 16:15:57
10 Are there some APIs that have the ability 16:16:01
11 to access what Facebook has considered more 16:16:03
12 sensitive information about its users? 16:16:07
13 A. So good example of a -- of an API that I 16:16:11
14 think is -- would be considered sensitive is an API 16:16:15
15 called "auth.log-in," which would allow a user to 16:16:19
16 log in to a third-party application using their 16:16:26
17 Facebook user name and password. 16:16:29
18 And that would be considered potentially 16:16:31
19 sensitive because the user is entering their 16:16:36
20 Facebook user name and password into a third-party 16:16:38
21 context. 16:16:42
22 Q. Okay. And help me understand why that 16:16:46
23 would be considered sensitive. 16:16:50
24 Would that be considered highly sensitive 16:16:52
25 in the Facebook terminology? 16:16:55

CONFIDENTIAL

1 A. I'm not sure what you would be referring 16:16:58
2 to with -- by "highly sensitive." I'm not aware of 16:16:59
3 a specific set of things that would be classed as 16:17:05
4 "highly sensitive." 16:17:09
5 Q. Okay. How about friends permissions 16:17:12
6 and/or -- friend-related APIs? 16:17:16
7 Are you familiar with friend-related APIs? 16:17:19
8 A. Can you understand -- just represent -- 16:17:23
9 just for clarification, can you help me understand 16:17:26
10 what you mean by "friend-related APIs"? 16:17:28
11 Q. Sure. And we'll get into this more -- in 16:17:30
12 more detail later as well. 16:17:33
13 But APIs that provide access to the 16:17:35
14 information about a Facebook user's friends, are 16:17:36
15 those referred to by Facebook as "friends 16:17:39
16 permissions" or "friends APIs"? 16:17:42
17 A. There was a set of permissions that 16:17:46
18 were -- were referred to as the friend permissions, 16:17:48
19 yes. 16:17:52
20 Q. And did Facebook consider those 16:17:54
21 permissions to be sensitive? 16:17:56
22 A. I think -- I'm not sure -- I'm not sure if 16:18:01
23 there's a way to specifically answer that. Those 16:18:08
24 were a set of permissions that were available at 16:18:14
25 one time on the Platform and are no longer 16:18:16

Page 27

CONFIDENTIAL

1 generally available. 16:18:21

2 Q. And, again, from the perspective of 16:18:24

3 Facebook, did Facebook discuss those permissions in 16:18:26

4 terms of them being sensitive or highly sensitive? 16:18:31

5 A. They were certainly discussed in the 16:18:39

6 context of being a set of permissions worth 16:18:41

7 discussing. 16:18:47

8 They may have been discussed at times as 16:18:48

9 sensitive. I'm not sure about whether or not they 16:18:51

10 were discussed as highly sensitive. There's no 16:18:53

11 official designation for those permissions that was 16:18:55

12 consistent across the company. 16:19:00

13 Q. And we're about to move on to some other 16:19:03

14 topics, but can you give me an example of a 16:19:06

15 permission that Facebook did refer to as "highly 16:19:09

16 sensitive"? 16:19:11

17 A. I can't give you an example here today of 16:19:14

18 a permission or a -- do you -- from reviewing the 16:19:16

19 documents I've reviewed, I don't recall a set of 16:19:21

20 APIs or permissions that would have been 16:19:24

21 considered -- referred to as "highly sensitive." 16:19:26

22 It's possible that they were referred to 16:19:29

23 using that term by some people, but I don't -- I 16:19:31

24 don't think there was an official designation in 16:19:35

25 any way. 16:19:38

CONFIDENTIAL

1 Sorry. Official -- I'm not aware of an 16:19:41
2 official designation of "highly sensitive." 16:19:44
3 Q. And if you were asked to prepare a list of 16:19:47
4 everything that Facebook -- every API Facebook 16:19:50
5 considered sensitive or highly sensitive, who at 16:19:54
6 Facebook would you go talk to to get that 16:19:57
7 information? 16:19:59
8 A. There was a categorization of some APIs 16:20:03
9 done in, I think, 2018 to categorize APIs that were 16:20:08
10 still generally available that were still in 16:20:17
11 existence in that time against -- against a set of 16:20:21
12 criteria. 16:20:27
13 I would go speak to one of the people that 16:20:29
14 was involved in that project in around 2018. 16:20:32
15 Q. And do you know -- do you recall who those 16:20:36
16 people -- who was in charge of that project? 16:20:38
17 A. I think Konstantine -- Konstantinos -- I 16:20:41
18 really can't pronounce his last name. 16:20:47
19 "KP" as he is otherwise known -- 16:20:50
20 Konstantinos Papamiltiadis -- I don't even want to 16:20:52
21 try -- was leading that project, as I understand 16:20:55
22 it. 16:20:57
23 Q. Okay. And there are some documents that 16:20:57
24 have his name, and I can't begin to pronounce that 16:20:59
25 either, so we'll just refer to him as "KP" for the 16:21:02

CONFIDENTIAL

1 benefit of the court reporter. 16:21:05

2 Understood? 16:21:07

3 A. That's good. That's good with me. 16:21:08

4 Q. So there was a few other terms that you 16:21:10

5 mentioned that I want to make sure we understand 16:21:12

6 and I've used as well. 16:21:14

7 One is a "permission." 16:21:16

8 In the context of an API, what is a 16:21:18

9 "permission"? 16:21:20

10 A. In the context of -- can you help me 16:21:23

11 understand, "in the context of an API"? 16:21:26

12 Q. Or APIs generally. 16:21:32

13 A. So my understanding would be that in the 16:21:35

14 context of an API generally, a permission would 16:21:38

15 refer to a way for users -- users of the API or 16:21:42

16 consumers or integration -- integrators of the API 16:21:48

17 to determine what information was available over 16:21:52

18 that interface. 16:21:59

19 Q. And speaking specifically about the -- the 16:22:03

20 entities that were accessing information on the 16:22:07

21 Facebook Platform, does "permission" refer to the 16:22:10

22 grant of access by Facebook to APIs? 16:22:13

23 A. "Permissions" in the Facebook Platform 16:22:17

24 context refers to permissions that a user, a 16:22:22

25 Facebook user, would grant an application to which 16:22:27

Page 30

CONFIDENTIAL

1 information the application would then have access 16:22:34
2 to after the user had given permission. 16:22:36

3 Q. And that brings me to my next question, 16:22:41
4 which is capability. 16:22:44

5 In the context of APIs, what is the 16:22:46
6 definition of "capabilities" or a "capability"? 16:22:49

7 A. Again, do you mean in the context of an 16:22:54
8 API generally, or -- 16:22:56

9 Q. Yes. 16:22:59

10 A. So in the context of an API generally, 16:23:01
11 "capability" doesn't have an industry-standard 16:23:04
12 meaning. 16:23:07

13 Q. How does Facebook generally use that term? 16:23:13

14 A. In the context -- in the context of the 16:23:18
15 Facebook Platform, "capability" refers to a set of 16:23:21
16 features that would be available to some apps on 16:23:30
17 the Facebook Platform, and that would have enabled 16:23:37
18 a range of functionality. 16:23:41

19 Q. And specifically, when talking about APIs, 16:23:44
20 would a "capability" relate to the entity's ability 16:23:47
21 to have access to certain APIs on the Platform? 16:23:54

22 A. Capabilities would -- would modify the -- 16:24:00
23 the behavior of the Facebook Platform in a number 16:24:06
24 of different ways. 16:24:08

25 Q. And, again, I'm trying to understand how 16:24:11

CONFIDENTIAL

1 the term is used in the context of Facebook's 16:24:13
2 discussions of what APIs a third party has access 16:24:15
3 to. 16:24:19

4 Does that help in any way to flesh out 16:24:21
5 what it means? 16:24:25

6 A. So a capability -- my previous answer, I 16:24:27
7 think, is accurate in that a capability is a way 16:24:30
8 for the standard behavior of the Facebook Platform 16:24:34
9 to be modified in some way. 16:24:37

10 Q. And I'm -- I apologize for struggling to 16:24:42
11 understand this, but -- so let's assume that an app 16:24:44
12 or a developer wants to have access to friend 16:24:49
13 data-related permissions. Okay? 16:24:53

14 Can we start with that premise? 16:24:59

15 And I'll ask a question based on that 16:25:03
16 premise: 16:25:05

17 Is there a capability that would be 16:25:06
18 provided to that developer that would enable access 16:25:07
19 to those permissions -- or to those APIs? 16:25:10

20 A. Can you help me understand what time frame 16:25:15
21 you're referring to? 16:25:17

22 Q. Sure. Any time between 2007 and the 16:25:21
23 present. 16:25:24

24 A. So I think the answer depends on the time. 16:25:28
25 In -- you know, the early part of that time period, 16:25:34

CONFIDENTIAL

1 let's say 2012, access to the friend permissions 16:25:40
2 was available to all applications on the Facebook 16:25:47
3 Platform. 16:25:51
4 Later on, the friend permissions were not 16:25:53
5 available to every app on the Platform, and access 16:25:58
6 to those would have required a modification to the 16:26:03
7 standard API behavior. And that would have been 16:26:06
8 governed by capability. 16:26:10
9 Q. Thank you. You've helped me understand 16:26:12
10 any number of documents I have reviewed now. 16:26:14
11 That's helpful information. 16:26:17
12 We can move on. 16:26:20
13 Do you understand what "read permission 16:26:22
14 APIs" are? 16:26:24
15 A. So there's two different concepts that are 16:26:28
16 worth picking apart: There's the concept of 16:26:31
17 permissions, and there's a concept of APIs, and 16:26:35
18 those are separate concepts. 16:26:38
19 So I'm not sure how to answer the 16:26:44
20 question. 16:26:46
21 Q. Let me break it down. I've seen reference 16:26:47
22 to "read stream APIs," for example. 16:26:50
23 Are you familiar with those? 16:26:52
24 A. I am familiar with the -- the concept of a 16:26:56
25 read stream API, yes. 16:26:59

CONFIDENTIAL

1 Q. Okay. What is that? 16:27:02

2 A. In the context of the Facebook Platform? 16:27:07

3 Is that what you're asking about? 16:27:09

4 Q. Yes. 16:27:11

5 A. My understanding is that the read stream 16:27:13

6 API would allow an application to access a -- 16:27:16

7 the -- an authorized -- a user who -- let me start 16:27:20

8 again to make sure I'm framing this correctly for 16:27:24

9 you. 16:27:26

10 The read stream API would allow an 16:27:28

11 application to access a user's Newsfeed. In order 16:27:31

12 to access that API, the user would have to give the 16:27:35

13 application permission to do so. 16:27:41

14 Q. And what about Social Context APIs? What 16:27:45

15 are those? 16:27:50

16 A. My understanding is a Social Context API 16:27:54

17 refers to an API that helped applications 16:27:57

18 understand the relationships between two users of 16:28:02

19 the application. 16:28:06

20 Q. Two users, or any number of users? 16:28:10

21 A. My understanding is the Social Context API 16:28:15

22 referred to social context between two app-using 16:28:17

23 users. 16:28:22

24 Q. And we'll get into this in more detail 16:28:25

25 later, but both with read stream and social context 16:28:28

CONFIDENTIAL

1 APIs, the information that the app or developer 16:28:31
2 would access would include friend information for 16:28:36
3 the users that authorized the app or developer to 16:28:38
4 have access. Right? 16:28:43

5 A. Sorry. Can you restate the question? I 16:28:44
6 want to make sure I fully understand. 16:28:46

7 Q. Sure. You described what a read stream 16:28:48
8 permission was, and you described what a social 16:28:50
9 context API was. 16:28:53

10 Both of those APIs, if authorized by a 16:28:55
11 user, would provide access to friends information 16:28:57
12 of that user. Right? 16:28:59

13 A. The read stream API would grant access to 16:29:04
14 an app using a person's Newsfeed. A Newsfeed on 16:29:07
15 Facebook typically contains content posted by that 16:29:13
16 user's friends. 16:29:17

17 Q. Okay. And how about the social context 16:29:18
18 API? Would that do the same? 16:29:19

19 A. I'd have to review the API documentation 16:29:24
20 for -- for the -- if there was a specific API 16:29:26
21 you're referring to, exactly how it behaved. 16:29:31

22 Q. And that's a helpful qualification. 16:29:36

23 Is there a set of -- or a place where 16:29:40
24 documentation of APIs is stored so that if Facebook 16:29:43
25 wanted to understand the specific information that 16:29:46

CONFIDENTIAL

1 that API made available, it could go to that set 16:29:49
2 and find the answer? 16:29:52
3 A. The Facebook developer website is 16:29:56
4 typically where API documentation is stored and 16:29:58
5 published. 16:30:02
6 Q. And that's true for any API that has ever 16:30:04
7 existed, or simply for the active APIs? 16:30:08
8 A. That -- the Facebook developer website is 16:30:16
9 typically for APIs that are available -- publicly 16:30:18
10 available. 16:30:22
11 And so not every API that's ever existed 16:30:23
12 would necessarily have a documentation -- would 16:30:26
13 have a document on the Facebook developer website. 16:30:30
14 Q. Okay. So where would one go to find 16:30:33
15 information on every API that ever existed? 16:30:35
16 A. The -- I'm not sure every API that ever 16:30:42
17 existed necessarily had a -- a document -- an 16:30:46
18 associated document written about it. 16:30:51
19 The source of truth for which APIs existed 16:30:53
20 and so on would have been the Facebook code base 16:30:57
21 itself. 16:31:01
22 Q. And how would one go about searching that 16:31:03
23 for information about a defunct API? 16:31:06
24 A. There are internal tools at Facebook that 16:31:10
25 allow user search for code which existed in the 16:31:13

CONFIDENTIAL

1 Facebook code base. 16:31:19

2 Q. And what are those internal tools? 16:31:21

3 A. I am not sure of the name of the internal 16:31:27

4 tools. I'd have to get back to you on -- on the 16:31:31

5 specific name of the tool. 16:31:35

6 MR. LOESER: And, Counsel, if you could 16:31:39

7 get back to us with that information, I'd 16:31:40

8 appreciate it. 16:31:42

9 MR. BLUME: Noted. 16:31:47

10 BY MR. LOESER: 16:31:48

11 Q. And, Mr. Cross, what is a "private API"? 16:31:50

12 A. Can you help me understand the context in 16:31:58

13 which you're asking the question? 16:32:01

14 Q. Sure. In the context of email and other 16:32:03

15 materials reviewed -- that you reviewed to prepare 16:32:05

16 for this deposition, the term "private API" is 16:32:09

17 frequently used. 16:32:14

18 Do you have an understanding of what is 16:32:15

19 meant by that at Facebook? 16:32:17

20 A. My understanding of the term "private API" 16:32:19

21 is that it would be an API that was not generally 16:32:22

22 available to most applications on the Facebook 16:32:27

23 Developer Platform. 16:32:33

24 Q. Okay. So explain to me what the 16:32:36

25 difference is between a private API and a 16:32:38

CONFIDENTIAL

1 capability. 16:32:41

2 A. So a "private API" would refer to a 16:32:42

3 specific API method, generally, that could be 16:32:47

4 accessed by developers. 16:32:51

5 A "capability" is the means by which 16:32:53

6 access to that API is governed. 16:32:56

7 Q. We discussed how APIs function and how 16:33:07

8 APIs provide access to developers or other entities 16:33:09

9 about information about Facebook users. 16:33:16

10 Were there any other technical means by 16:33:21

11 which Facebook shared information about its users 16:33:24

12 with developers or other entities? 16:33:25

13 A. The Graph API was the -- was a primary way 16:33:31

14 that information would be exchanged with third 16:33:36

15 parties. It's possible at the company there were 16:33:40

16 other ways for people to exchange information with 16:33:44

17 third parties; email, for example. But the 16:33:49

18 Graph API would have been one of the common ways to 16:33:55

19 programmatically exchange information. 16:33:58

20 Q. And can you identify any other ways to 16:34:01

21 programmatically exchange information? 16:34:04

22 A. I don't have the ability to -- to know 16:34:11

23 every form of information interchange ever used 16:34:15

24 by -- by the company, so I -- I don't feel I can 16:34:20

25 specify other -- any specific other systems. The 16:34:26

CONFIDENTIAL

1 Graph API would have been a common one. 16:34:31

2 There were other APIs in existence over 16:34:34

3 time. Two examples would be the REST API and 16:34:38

4 something called FQL. 16:34:45

5 Q. And explain, if you can, what those two 16:34:49

6 systems are. 16:34:51

7 A. So the REST API was a -- a mechanism, a 16:34:53

8 form of API used by the Facebook Platform to 16:34:59

9 exchange information with third parties that 16:35:03

10 pre-existed the Graph API, and the two were in use 16:35:05

11 simultaneously for a period. 16:35:12

12 FQL -- 16:35:14

13 Q. Let me pause you there. Sorry to 16:35:16

14 interrupt, but what period did that exist, and when 16:35:17

15 was it overlapping? 16:35:21

16 A. The REST API, my understanding, was the 16:35:24

17 original form of the Facebook Developer Platform. 16:35:28

18 So my understanding is that was launched in 2007. 16:35:30

19 And my understanding is the REST API was 16:35:37

20 deprecated in -- I'm not sure of the specific date, 16:35:39

21 but my understanding is around the time that 16:35:43

22 Graph API Version 1.1 or 1.2 was -- was announced. 16:35:46

23 But that -- we can follow up with a 16:35:53

24 specific because I want to make sure I don't give 16:35:57

25 you the wrong answer. 16:36:00

CONFIDENTIAL

1 Q. Sure. And do you have a rough idea of 16:36:01
2 what year the Graph API came into being? 16:36:03
3 A. The Graph API was launched in April 2010. 16:36:07
4 Q. So we've touched on the Graph API 16:36:17
5 Version 1, and that's another important term. I 16:36:20
6 want to make sure I understand that. 16:36:23
7 So Graph API version, was it 1.0 or 1.1? 16:36:26
8 What was the very first version of that 16:36:31
9 system? 16:36:33
10 A. The Graph API was launched in April 2010. 16:36:35
11 At the time, it was just called the "Graph API." 16:36:39
12 Q. Okay. And I gather from your LinkedIn 16:36:42
13 résumé, you had something to do with the initial 16:36:45
14 development of the Graph API version zero, I guess, 16:36:47
15 whatever you call it. Is that right? 16:36:53
16 A. So the version of the API that was 16:36:55
17 originally launched in April 2010 is what later 16:36:57
18 became known as Version 1. 16:37:00
19 I was actually not involved in the 16:37:03
20 development of that. It was launched in 16:37:05
21 April 2010. I joined the company in 16:37:07
22 September 2010. 16:37:11
23 Q. Okay. So let's -- let me make sure I 16:37:15
24 understand the different versions. 16:37:17
25 It starts with Graph API, period, and then 16:37:19

Page 41

CONFIDENTIAL

1 the transition from Version 1 to Version 2? 16:38:47

2 A. There was a -- also a whole -- also a 16:38:51

3 whole range of problems that -- that we were 16:38:53

4 attempting to solve. 16:38:56

5 Can you help me understand, like, what you 16:38:58

6 are looking for? 16:39:00

7 Q. Well, let's start at the -- are you 16:39:01

8 familiar with the expression "the 30,000-foot 16:39:03

9 level"? 16:39:07

10 A. I've heard of that term, yes. 16:39:08

11 Q. Okay. So let's think about it in terms of 16:39:10

12 at the 30,000-foot level if there were major issues 16:39:13

13 that Facebook was attempting to solve through that 16:39:17

14 transition, if any of those come to mind. 16:39:19

15 A. I'll do my best to explain some. 16:39:23

16 One was that the original way that 16:39:27

17 breaking changes had been made in the Facebook 16:39:32

18 Developer Platform was in an app configuration. 16:39:34

19 So in your app, configuring your app 16:39:39

20 settings, that was a workable mechanism when the 16:39:42

21 Facebook Platform was primarily called by 16:39:48

22 server-side applications. 16:39:52

23 In the early 2010s, the developer 16:39:55

24 ecosystem moved more and more to mobile 16:40:00

25 applications, which meant developers' code running 16:40:02

CONFIDENTIAL

1 on devices, which meant that it was harder for them 16:40:08
2 to centrally control changes to the API. 16:40:12
3 And so one of the big problems that 16:40:15
4 Facebook was trying to solve with the launch of 16:40:18
5 API Version 2 was the introduction of versioning 16:40:21
6 itself; to allow developers to specify the API 16:40:23
7 behavior they wanted when calling the API. 16:40:28
8 Q. Okay. And can you think any of other 16:40:32
9 major problems Facebook was attempting to resolve 16:40:34
10 with Graph API Version 2? 16:40:39
11 A. Another thing that was being solved with 16:40:45
12 Version 2 is the limiting of the amount of data 16:40:48
13 that was available via the API. 16:40:53
14 Q. And why did Facebook want to do that? 16:40:58
15 A. It was a range of reasons why Facebook was 16:41:02
16 attempting to alter the amount of information that 16:41:07
17 was available via the API. 16:41:10
18 One reason that comes to mind is that we 16:41:14
19 had heard feedback from users that they were 16:41:18
20 concerned about the amount of information that was 16:41:22
21 available via the API, and we wanted to increase 16:41:25
22 trust -- user trust in the Facebook Developer 16:41:30
23 Platform, and that was one of the drivers behind 16:41:32
24 that decision. 16:41:39
25 Q. And when Facebook heard from users about 16:41:40

CONFIDENTIAL

1 their concerns, were those concerns with respect to 16:41:43
2 any particular types of user information that was 16:41:48
3 being made available to third parties? 16:41:51

4 A. There was a -- a range of concerns. One 16:41:55
5 of them was the ability for apps to access friends 16:41:59
6 information. 16:42:04

7 Q. And was another reason to limit the amount 16:42:07
8 of user information made available to developers a 16:42:10
9 desire by Facebook to better profit from the data 16:42:17
10 it collected about users by giving away less to 16:42:20
11 developers for free? 16:42:23

12 A. Can you repeat the question? 16:42:28

13 Sorry, I want to make sure I understand. 16:42:29

14 Q. Sure. It took me great mental acuity to 16:42:31
15 say it in the first place, so how about if I 16:42:36
16 just -- if we read it back and see, if you heard it 16:42:38
17 a second time, it makes better sense. It might 16:42:41
18 just be a bad question, but let me look and see. 16:42:44
19 And I can read it. 16:42:47

20 Was another reason to limit the amount of 16:42:48
21 user information made available to developers a 16:42:50
22 desire by Facebook to better profit from the data 16:42:53
23 it collected about users by giving away less of 16:42:55
24 that information for free? 16:42:59

25 A. Having spoken to people and read 16:43:05

CONFIDENTIAL

1 documents, that's -- that's not a concern that was, 16:43:08
2 as I understand it, front and center in the 16:43:11
3 decision-making. 16:43:14

4 Q. Was that a concern that was discussed or 16:43:15
5 expressed at times, however? 16:43:17

6 A. I have recalled seeing documents that 16:43:23
7 were -- there were a number of discussions about 16:43:28
8 how to balance the equities between users, 16:43:32
9 developers, and Facebook -- in this case, the 16:43:36
10 company Meta but also the application -- as to how 16:43:39
11 the Facebook Developer Platform was being used. 16:43:43

12 Q. Thank you. Do you know, when was the 16:43:50
13 first time or time period that Facebook heard 16:43:53
14 concerns expressed by users about the amount of 16:43:58
15 their information that was being made available to 16:44:01
16 third parties? 16:44:04

17 A. I don't know -- I'm not able to sense 16:44:09
18 specifically when those concerns began to be heard. 16:44:14

19 I am aware that there was some -- some 16:44:18
20 research done, and there were some discussions 16:44:20
21 happening in -- in the 2012 and 2013 time period; 16:44:23
22 but exactly, you know, when this was -- was -- 16:44:28
23 began to be discussed is hard for me to say with 16:44:36
24 specificity. 16:44:38

25 Q. And then Graph API Version 2 became 16:44:39

| | | |
|----|---|----------|
| 1 | operative when? | 16:44:43 |
| 2 | A. Graph API Version 2 was made broadly | 16:44:48 |
| 3 | available on April the 30th, 2015 -- sorry, | 16:44:53 |
| 4 | April the 30th, 2014. | 16:44:56 |
| 5 | Q. Okay. So during the time that Facebook | 16:44:58 |
| 6 | users expressed some concern -- you think sometime | 16:45:03 |
| 7 | starting in around 2012 -- and those concerns | 16:45:06 |
| 8 | were -- or were those concerns addressed in | 16:45:09 |
| 9 | Graph API Version 2? | 16:45:13 |
| 10 | A. API Version 2 contained a number of | 16:45:20 |
| 11 | changes designed to -- to satisfy some of those | 16:45:22 |
| 12 | concerns. | 16:45:26 |
| 13 | Q. And those changes were implemented in -- | 16:45:28 |
| 14 | in 2015. | 16:45:31 |
| 15 | A. The -- API Version 2, you know, was | 16:45:36 |
| 16 | launched in -- on April 30, 2014, and the previous | 16:45:41 |
| 17 | versions of the API began to be deprecated -- began | 16:45:44 |
| 18 | to be deprecated in -- on April 30, 2015. | 16:45:47 |
| 19 | Q. I'm confident that all these questions | 16:46:02 |
| 20 | will make the more specific testimony a lot faster | 16:46:05 |
| 21 | because we have a basic understanding now of these | 16:46:08 |
| 22 | terms, so I appreciate your patience as we go | 16:46:10 |
| 23 | through. I have a few more questions that are | 16:46:13 |
| 24 | general in nature like this before we get | 16:46:15 |
| 25 | specifically into the topics and subtopics of the | 16:46:19 |

CONFIDENTIAL

1 notice. 16:46:21

2 You testified that Facebook provided 16:46:22

3 access to Facebook user information to what we've 16:46:23

4 called "third parties" through APIs. Right? 16:46:26

5 A. The Facebook Developer Platform allowed 16:46:30

6 third parties to build applications that accessed 16:46:33

7 data on Facebook users via the Graph API or via a 16:46:38

8 set of APIs. 16:46:44

9 Q. And apps are one category of the third 16:46:47

10 parties that could access APIs on the Facebook 16:46:50

11 Platform? 16:46:54

12 A. Sorry. Can you -- this is one of the 16:47:00

13 things that -- to make sure we get right and 16:47:01

14 understand, can you specify -- just repeat the 16:47:04

15 question again? 16:47:06

16 And -- if you're referring to one of the 16:47:07

17 categories, could you help me understand what, in 16:47:10

18 your mind, is the other categories? 16:47:12

19 Q. Sure. I'm going to go through some 16:47:14

20 different categories. I'm trying to understand the 16:47:16

21 different entities that were allowed to use the -- 16:47:18

22 the -- use APIs to access information. 16:47:21

23 And one of those -- and I'm calling them 16:47:23

24 "categories." If you have different terminology, 16:47:25

25 please tell me what it is. 16:47:27

Page 47

CONFIDENTIAL

1 But one of the categories that could 16:47:29

2 access APIs was -- are referred to as "apps." 16:47:30

3 Right? 16:47:34

4 A. So in the context of the Facebook 16:47:36

5 Developer Platform, to access any information via 16:47:38

6 the API had to be done through a Facebook app ID; 16:47:43

7 through a Facebook application with a specific 16:47:47

8 Facebook app ID. 16:47:50

9 Q. Okay. So that brings me to my next 16:47:51

10 question, which is partners. 16:47:54

11 Facebook has what it refers to as 16:47:56

12 "partners." Correct? 16:47:58

13 A. I've heard -- I've seen the term "partner" 16:48:02

14 used. It refers to a wide range of relationships 16:48:05

15 between Facebook and its -- and various third 16:48:08

16 parties. 16:48:13

17 Q. Okay. And you were involved in the 16:48:14

18 partnerships group for four years or so at 16:48:16

19 Facebook? 16:48:19

20 A. I was -- I was involved in the 16:48:21

21 partnerships organization from September 2010 until 16:48:22

22 around January 2014. 16:48:25

23 Q. Okay. And what did the term 16:48:28

24 "partnerships" mean in that context? 16:48:30

25 A. In that context, "partnerships" refers to 16:48:33

CONFIDENTIAL

1 a range of relationships between Facebook and -- 16:48:37
2 and third parties, ranging from informal to more 16:48:41
3 structured relationships governed by contracts. 16:48:48
4 Q. And with regard to those partnerships, was 16:48:51
5 Facebook providing access to user information 16:48:55
6 through APIs? 16:48:57
7 A. In the context of the Platform 16:49:00
8 Partnerships team, we typically -- the people on 16:49:02
9 the Platform Partnerships team would typically be 16:49:05
10 working with third parties that were using the 16:49:09
11 Facebook Platform in some way. 16:49:11
12 Q. Okay. And I think this is what I'm trying 16:49:13
13 to get at. 16:49:15
14 Are there entities that Facebook calls 16:49:16
15 "partners" that have access to Facebook user 16:49:17
16 information but do not have apps on the Platform? 16:49:21
17 A. In this specific -- in this context, I -- 16:49:27
18 I am not aware of -- of -- in this specific 16:49:34
19 context, when we're talking about platform 16:49:39
20 partnerships, it's typically referring to entities 16:49:41
21 that use the Facebook Developer Platform, which 16:49:44
22 would typically be done by -- through an app ID, 16:49:47
23 but there were other features of the Facebook 16:49:51
24 Developer Platform that did not require you to use 16:49:53
25 an app ID. 16:49:56

CONFIDENTIAL

1 Q. And, generally speaking, what were those 16:49:57
2 features? 16:49:59

3 A. One common set of examples was the social 16:50:02
4 plug-ins, which a developer or an entity could 16:50:04
5 embed on their own website, that didn't access the 16:50:09
6 Facebook API -- sorry -- didn't access the 16:50:13
7 Graph API. 16:50:19

8 Q. And how did those features provide access 16:50:20
9 to Facebook user information? 16:50:24

10 A. Those products were embedded on -- 16:50:29
11 typically embedded on the third-party website and 16:50:33
12 would render information to the -- to the person 16:50:36
13 viewing the web page. 16:50:40

14 The -- the entity that ran the web page 16:50:43
15 would not see the contents within the social 16:50:46
16 plug-in. 16:50:50

17 Q. And would Facebook obtain that 16:50:53
18 information? 16:50:54

19 A. To render a social plug-in, it would be 16:50:57
20 rendered by Facebook servers. 16:50:59

21 Q. Okay. So that was a mechanism by which 16:51:02
22 Facebook obtained information about Facebook users 16:51:04
23 while they were off-platform? 16:51:07

24 A. The way the "Like" button worked was to 16:51:12
25 render -- if you visited a website that had the 16:51:15

CONFIDENTIAL

1 "Like" button embedded on it, then the Like button 16:51:17
2 would render. And in order to render it, Facebook 16:51:21
3 would receive a request from the user's web 16:51:24
4 browser. 16:51:29

5 Q. Okay. And that was not through an API; 16:51:29
6 that was through this other product. 16:51:31

7 A. The social plug-ins are a different way of 16:51:36
8 Facebook integrating information into third-party 16:51:40
9 contexts that users could access. 16:51:45

10 Q. And what is the time period that social 16:51:49
11 plug-ins have existed? 16:51:52

12 A. My understanding is that social plug-ins 16:51:55
13 were launched alongside the Graph API in 16:51:58
14 April 2010. 16:52:00

15 Q. And are they still active today? 16:52:03

16 A. I think there are some social plug-ins 16:52:06
17 still active today, although I'm not certain, and 16:52:09
18 that's something we can follow up on. 16:52:12

19 Q. And is there a tool that allows Facebook 16:52:15
20 to identify what social plug-ins exist and the time 16:52:17
21 period in which they've been active? 16:52:21

22 A. The Facebook code base, similar to my 16:52:25
23 previous answer, would allow you to -- would allow 16:52:29
24 someone to understand which social plug-ins have 16:52:31
25 existed over what period of time. 16:52:34

CONFIDENTIAL

1 Q. Are you familiar with the term 16:52:39
2 "integration partners"? 16:52:40
3 A. I've heard the phrase "integration 16:52:43
4 partners," yes. 16:52:46
5 Q. And what is an "integration partner"? 16:52:49
6 A. Again, can you help me understand in the 16:52:52
7 context in which you're asking the question? 16:52:54
8 Q. Sure. All of my questions are around 16:52:57
9 trying to understand how Facebook shares 16:52:59
10 information with what I'm calling "third parties," 16:53:00
11 and my understanding is that integration partners 16:53:02
12 are an entity with which Facebook shares user 16:53:06
13 information. 16:53:08
14 So in that context. 16:53:08
15 A. My understanding of the term -- of 16:53:12
16 integration partners in that context is a set of 16:53:14
17 entities, third parties, that Facebook had a 16:53:19
18 relationship with to enable them to build 16:53:24
19 Facebook-like or -- Facebook-branded or 16:53:28
20 Facebook-like or feedback-branded experiences on 16:53:33
21 the third party's platforms and services. 16:53:37
22 Q. And so Facebook user information was 16:53:42
23 provided to integration partners. Right? 16:53:46
24 A. Typically, the way that an integration 16:53:52
25 partner application works is that the application 16:53:54

CONFIDENTIAL

1 was offered to users on that platform. 16:53:59

2 Users would choose to use that application 16:54:02

3 and, as a result of the user choosing to use the 16:54:05

4 application, information about -- information would 16:54:12

5 be shared -- that the user had granted access to 16:54:17

6 would be shared with the third party in order for 16:54:22

7 them to provide the experience for a user. 16:54:24

8 Q. And do integration partners have apps on 16:54:28

9 the Facebook Platform? 16:54:31

10 A. The way that you would -- a developer 16:54:34

11 would interact with the Facebook APIs would be 16:54:38

12 through an app ID, which is what I'm referring to 16:54:42

13 as an "application" in this specific context. 16:54:47

14 Q. Okay. And, again, I'm just -- I want to 16:54:50

15 make sure I understand. 16:54:53

16 So in order to create that Facebook 16:54:54

17 experience on a phone, would the information 16:54:56

18 necessary to create that experience be communicated 16:55:03

19 to that phone company via the Graph API or through 16:55:06

20 some other mechanism? 16:55:12

21 A. To build one of these integration partner 16:55:16

22 experiences, the information would be made 16:55:19

23 available through the Graph API; but, typically, 16:55:22

24 the information would be accessed from the device 16:55:27

25 itself that the user was using. 16:55:32

CONFIDENTIAL

1 Q. Okay. So not through an app on the 16:55:36
2 Facebook Platform. 16:55:38

3 A. This is where we need to make sure we're 16:55:42
4 using the specific terms. 16:55:44

5 The way you access the Facebook set of 16:55:47
6 APIs, the Facebook Platform, is through an entity 16:55:49
7 called a "Facebook app ID" or a "Facebook app," 16:55:52
8 which has an app ID. That identifies -- that 16:55:55
9 allows the owner of the app to make calls against 16:56:00
10 the Facebook APIs. 16:56:03

11 So, in that context, that's very 16:56:06
12 specifically what I'm referring to as a "Facebook 16:56:09
13 app." 16:56:10

14 Q. Okay. And is there anything -- And, 16:56:13
15 again, this clarification is really helpful. 16:56:16

16 In thinking about how integration partners 16:56:21
17 get information about Facebook users, is there 16:56:23
18 anything different about that system than the way a 16:56:26
19 normal app developer gets information about users? 16:56:28

20 A. On a technical level, the way that the 16:56:34
21 information is exchanged would have been done 16:56:37
22 through the Graph API, which is the standard way to 16:56:39
23 access -- that users would give their information 16:56:44
24 to apps and third parties. 16:56:50

25 So, at a technical level, the mechanism of 16:56:55

CONFIDENTIAL

1 information interchange is the same, but an 16:56:59
2 integration partner would be -- would be billing, 16:57:03
3 typically, a different kind of experience than a 16:57:06
4 regular Facebook Platform developer. 16:57:09

5 Q. And that experience was different because 16:57:14
6 one is on the Platform, the Facebook Platform, and 16:57:17
7 the other is on the integration partner's device? 16:57:20

8 A. So this -- again, this is for me to get 16:57:27
9 very specific about. 16:57:31

10 In the context of the Facebook Platform, 16:57:32
11 there is a concept of a feedback app, which is the 16:57:34
12 entity that determines the -- how the information 16:57:38
13 is accessed, what permissions have been granted by 16:57:42
14 users, and so on. 16:57:45

15 What developers build are often also 16:57:47
16 called "apps," and, like, that's a -- that's a 16:57:50
17 different concept. 16:57:56

18 The application that a third-party 16:57:58
19 developer would build might run on their web 16:58:01
20 server. It might run on their hardware. It might 16:58:05
21 run on a user's physical device. 16:58:08

22 And so these are distinct concepts which 16:58:12
23 are important to -- to separate. 16:58:15

24 Q. Does Facebook have a term for -- for users 16:58:19
25 that interact with integration partners, or are 16:58:23

CONFIDENTIAL

1 they called "integration users," or is there some 16:58:27
2 terminology that applies to that? 16:58:30
3 A. I'm not aware of distinct terminology that 16:58:32
4 would be different. These are just users. 16:58:35
5 Q. And before, you mentioned that a user 16:58:42
6 authorizes the integration partner to obtain 16:58:45
7 information when the user interacts with that -- 16:58:47
8 let's call it -- again, let's call it a phone, a 16:58:52
9 mobile phone. Is that right? 16:58:57
10 A. When a -- a good -- I think the easiest 16:59:00
11 way to answer this question is with an example. 16:59:04
12 So one good example here would be a 16:59:07
13 Facebook-branded app on the BlackBerry mobile 16:59:11
14 platform. 16:59:15
15 The user -- a user would typically have a 16:59:17
16 BlackBerry device or buy a BlackBerry device. 16:59:21
17 There would be a Facebook-branded app available on 16:59:24
18 that device. The user would choose to log in to 16:59:29
19 the application and, as a result of doing that, 16:59:32
20 would give the code running on the BlackBerry 16:59:35
21 device the ability to access that information that 16:59:40
22 that user would have had access to on Facebook on 16:59:46
23 the app built onto the -- the Facebook-branded 16:59:49
24 application built onto the BlackBerry device they 16:59:54
25 were using. 16:59:59

CONFIDENTIAL

1 Q. Okay. And in that example, the user 17:00:00
2 authorizes access to the Facebook user's 17:00:03
3 information. Correct? 17:00:06

4 A. When I -- if a user chooses to use the 17:00:09
5 Facebook-branded application on a BlackBerry 17:00:14
6 device, they are logging in on -- to that 17:00:17
7 application; and, as a result, the application has 17:00:22
8 access to some of the information that that user 17:00:24
9 would be able to see on Facebook. 17:00:26

10 Q. And that information that that company 17:00:29
11 would have access to would include information 17:00:33
12 about the user's friends. Right? 17:00:36

13 A. In the specific example I was just talking 17:00:40
14 about here, this would be a Facebook-branded 17:00:42
15 application; a Facebook-branded product running on 17:00:46
16 the user's BlackBerry device. 17:00:52

17 And the user's BlackBerry device would 17:00:54
18 then be making calls to Facebook's API in order to 17:00:56
19 render a Facebook experience -- a representative 17:01:00
20 Facebook experience on that user's BlackBerry 17:01:04
21 device. 17:01:06

22 Q. And that would -- among other types of 17:01:08
23 information that would be made available in that 17:01:12
24 example, friends information would be made 17:01:14
25 available. Right? 17:01:17

CONFIDENTIAL

1 A. Typically, a user would expect when 17:01:18
2 they're using a Facebook-branded experience to see 17:01:20
3 information about their friends and what their 17:01:26
4 friends had been doing. 17:01:28

5 Q. And so the answer is yes? 17:01:30

6 A. If I'm using a Facebook-branded 17:01:34
7 application on a BlackBerry device, I would expect 17:01:37
8 to see information about my friend, yes. 17:01:40

9 Q. And in that example, the friends are not 17:01:42
10 the ones who authorized BlackBerry to obtain that 17:01:45
11 information. Right? 17:01:50

12 A. The user is using a BlackBerry application 17:01:51
13 on the BlackBerry device, and the user has 17:01:54
14 authorized that application to access Facebook's 17:01:57
15 APIs in order to render a Facebook experience on 17:02:01
16 that device. 17:02:05

17 Q. So the answer to my question is, correct, 17:02:06
18 the friends did not authorize BlackBerry's access 17:02:11
19 to their information? 17:02:14

20 A. One of my friends may have also had a 17:02:16
21 BlackBerry device and may have logged in to the 17:02:19
22 Facebook-branded experience on that device. 17:02:22

23 Where I have -- I'm using Facebook -- the 17:02:27
24 Facebook-branded experience on my BlackBerry 17:02:31
25 device, then I am receiving -- I would be seeing 17:02:34

CONFIDENTIAL

1 data on my phone that was from my friends that may 17:02:37
2 not have been using BlackBerry. 17:02:43

3 Q. So, again, to answer the question, when 17:02:50
4 BlackBerry obtained friend information, that friend 17:02:52
5 information would include the information of people 17:02:56
6 who did not themselves use the BlackBerry device. 17:02:59

7 A. I'm trying to -- I'm trying to 17:03:04
8 understand -- 17:03:05

9 Q. I -- like -- 17:03:06

10 A. Sorry. 17:03:08

11 Q. Sorry. Go ahead. I apologize for 17:03:09
12 interrupting. 17:03:10

13 A. I -- I'm trying to work through the 17:03:12
14 specific example and explain the -- you know, how 17:03:16
15 these things, you know, worked from a user level 17:03:18
16 and a technical level. 17:03:22

17 In this case, you know, it's a -- it's a 17:03:24
18 set of code that happened to be written by 17:03:27
19 engineers at BlackBerry that ran on a user's 17:03:31
20 device, and it was that code that would have been 17:03:36
21 accessing -- typically, in that case -- accessing 17:03:38
22 the Facebook API. 17:03:41

23 Q. Right. As you said, as you explained in 17:03:44
24 more detail, when a user authorizes BlackBerry to 17:03:46
25 obtain the information, some of those user's 17:03:49

CONFIDENTIAL

1 friends may also have authorized BlackBerry. 17:03:53

2 And in that situation, both of those 17:03:56

3 people had authorized BlackBerry to obtain their 17:03:58

4 information. Right? 17:04:01

5 A. It's possible that -- yes, I would have 17:04:03

6 had -- I might have used -- I never actually had a 17:04:07

7 BlackBerry -- one of my friends -- I may have used 17:04:10

8 the Facebook application on a BlackBerry device. 17:04:13

9 One of my friends may have also used a 17:04:16

10 Facebook application on a BlackBerry device. But 17:04:19

11 when I was using the Facebook application on the 17:04:22

12 BlackBerry device, the experience would have 17:04:24

13 included information provided by the Facebook API 17:04:27

14 about people who had -- who were not necessarily 17:04:29

15 using the BlackBerry application on their 17:04:33

16 BlackBerry device -- the Facebook-branded 17:04:36

17 application on their BlackBerry device. 17:04:39

18 MR. LOESER: Okay. Thank you. 17:04:41

19 Mr. Blume, we have been going for a bit, 17:04:43

20 and we're about to transition into another area. 17:04:46

21 If now would be a time you would want to 17:04:49

22 take a break, that would be fine with me, or we can 17:04:51

23 keep rolling. 17:04:54

24 MR. BLUME: Now would be great. Thank you 17:04:55

25 very much. 17:04:57

Page 60

CONFIDENTIAL

1 THE VIDEO OPERATOR: Okay. And we're off 17:04:58

2 the record. It's 5:04 P.M. 17:04:59

3 (Recess from 5:04 P.M. to 5:22 P.M.) 17:21:36

4 (Mr. Melamed joined the deposition.) 17:22:59

5 THE VIDEO OPERATOR: We're back on the 17:23:01

6 record. It's 5:22 P.M. 17:23:01

7 BY MR. LOESER: 17:23:03

8 Q. I'm not sure whether to say good morning 17:23:05

9 or good afternoon, but still morning here and late 17:23:07

10 afternoon for you, so whichever. 17:23:10

11 Welcome back. 17:23:12

12 And a few other questions I realized 17:23:15

13 before we get into the notice itself, and I'm going 17:23:17

14 to ask you about a term I've seen in some Facebook 17:23:21

15 documents called "nonapp user-sharing." 17:23:24

16 Is that a term that you're familiar with? 17:23:28

17 A. I'm not familiar with the term "nonapp 17:23:33

18 user-sharing" specifically, no. 17:23:36

19 Q. Okay. Let me try and dig in a bit and see 17:23:39

20 if we can figure it out. 17:23:42

21 In addition to user information and users' 17:23:44

22 friends' information, Facebook at times provided 17:23:50

23 third parties access to information from people who 17:23:53

24 are not friends with the user. Is that correct? 17:23:55

25 A. I think my -- sorry. 17:24:03

Page 61

CONFIDENTIAL

1 Repeat that again. The specifics matter, 17:24:05
2 yeah. 17:24:07
3 Q. Yeah. So let me give you an example, and 17:24:09
4 you can -- and maybe what I said makes more sense. 17:24:12
5 Are you familiar with the Events API? 17:24:16
6 A. I am familiar with the Events API. 17:24:21
7 Q. And what is the "Events API"? 17:24:23
8 A. The Events API, as I understand it, refers 17:24:26
9 to a set of APIs that would be used by a Facebook 17:24:29
10 Platform application to access the events that a 17:24:35
11 user of the application was attending or had been 17:24:40
12 invited to attend, for example, or had attended in 17:24:47
13 the past, and -- yeah. I think that's -- that's a 17:24:52
14 high-level explanation. 17:25:00
15 Q. And so the Events API provided access to 17:25:02
16 information about the user's attendance, but also 17:25:05
17 other people's attendance at an event. Right? 17:25:08
18 A. My understanding is that the API allowed 17:25:12
19 an application to see other people attending that 17:25:15
20 event, yes. 17:25:20
21 Q. And some of those other people could be 17:25:21
22 people who were not friends with the user. 17:25:23
23 Correct? 17:25:25
24 A. The API would -- my understanding is the 17:25:27
25 API would return a list of people attending that 17:25:30

CONFIDENTIAL

1 event, some of whom may not be the app-using user's 17:25:34
2 friends. 17:25:38

3 Q. And is that situation -- have you seen 17:25:39
4 that described as "providing access to nonapp-user 17:25:41
5 information"? 17:25:46

6 A. I don't recall seeing it described as 17:25:53
7 that, but that -- that term seems like a reasonable 17:25:55
8 one to use in that context. 17:26:02

9 Q. Let's go back to Exhibit 330 and to 17:26:09
10 page 13, which was the -- and we're going to post 17:26:15
11 all the exhibits on the screen so if it's easier 17:26:21
12 for you to look that way, you can do that. 17:26:23

13 And while we're getting there, I am going 17:26:38
14 to read Topic 6, which is one of the topics for 17:26:40
15 which you have been designated to testify. 17:26:43

16 It is: 17:26:46

17 "The development of friend-sharing, 17:26:46
18 including but not limited to: its purpose 17:26:48
19 and identification of those involved in its 17:26:50
20 development; how the technology functioned; 17:26:52
21 the APIs and permissions associated with 17:26:55
22 friend-sharing; the communication of this 17:26:59
23 technology to users, including the drafting 17:27:01
24 of Facebook's Terms of Service, SRR, and Data 17:27:04
25 and Privacy Policies relating to 17:27:09

CONFIDENTIAL

1 friend-sharing; and the revenue impact and 17:27:11

2 net profits for Facebook relating to 17:27:15

3 friend-sharing throughout the Class Period." 17:27:16

4 Did I read that correctly? 17:27:19

5 A. You read that correctly. 17:27:21

6 Q. And my understanding from communications 17:27:23

7 from your counsel is that you have not prepared or 17:27:26

8 been prepared to testify about the following 17:27:30

9 clause: 17:27:34

10 "...the communication of this technology 17:27:35

11 to users, including the drafting of 17:27:36

12 Facebook's Terms of Service, SRR, and Data 17:27:39

13 and Privacy Policies relating to 17:27:43

14 friend-sharing." 17:27:44

15 Is that correct? 17:27:46

16 A. That's correct with my understanding, yes. 17:27:47

17 Q. And, sir, over the course of your 17:27:50

18 employment at Facebook, have you developed personal 17:27:51

19 knowledge of the topic I just read? 17:27:54

20 A. My personal knowledge would cover that to 17:28:03

21 some degree, yes. 17:28:05

22 Q. Mr. Cross, tell me what you did to prepare 17:28:07

23 to testify regarding Topic 6. 17:28:11

24 A. I spoke to a number of people inside the 17:28:16

25 company. I reviewed the documents that have been 17:28:18

CONFIDENTIAL

1 produced in this case, both some documents that my 17:28:25
2 legal team shared with me and the documents that 17:28:30
3 you have shared with me. 17:28:34

4 I also spent some time looking at the 17:28:36
5 Facebook developer website as it was in the past to 17:28:39
6 understand how -- how the platform originally 17:28:45
7 worked would refresh my memory. 17:28:50

8 Q. And as to the statement you just made, 17:28:54
9 where did you go to find how the Developer Platform 17:28:57
10 existed in the past? 17:29:02

11 A. I used the Wayback Machine, otherwise 17:29:05
12 known as archive.org, I think, is its address. 17:29:12

13 Q. Okay. So you didn't use any system or 17:29:17
14 tool within the Facebook structure. 17:29:20

15 A. Not to access the previous versions of the 17:29:24
16 Facebook developer website, no. 17:29:26

17 Q. And I asked you about whether you had 17:29:30
18 personal knowledge of the communication subtopic. 17:29:32

19 With regard to the remainder of the topics 17:29:36
20 covered by Topic 6, over the course of your 17:29:38
21 employment, did you develop personal knowledge of 17:29:41
22 those topics as well? 17:29:43

23 A. Given my involvement in this product area, 17:29:47
24 I did develop personal knowledge of how these 17:29:50
25 things worked. 17:29:54

CONFIDENTIAL

1 Q. And is there any component of this notice 17:29:56
2 that is a topic that the sole source of your 17:29:58
3 knowledge is the preparation you did for this 17:30:03
4 deposition? 17:30:06

5 A. Give me a second just to read the terms 17:30:10
6 again. 17:30:15

7 (Reviewing document.) 17:30:19

8 THE WITNESS: And your question was the -- 17:30:26
9 the -- in preparing -- sorry. 17:30:29

10 Just repeat your question again. 17:30:31

11 Is it the sole thing is my personal 17:30:33
12 experience, or the sole thing is not my personal 17:30:36
13 experience? 17:30:38

14 BY MR. LOESER: 17:30:39

15 Q. Not your personal experience. 17:30:39

16 I'm trying to find out if there's any 17:30:40
17 aspect of this that you only know about because of 17:30:43
18 the preparations that you did for this deposition 17:30:45
19 today. 17:30:47

20 A. Of those, the -- the revenue impact and 17:30:49
21 net profits is an area that I was not closely 17:30:51
22 involved in at the time. And so in trying to 17:30:54
23 answer your forthcoming questions on that topic, 17:30:59
24 I'll be primarily, if not exclusively, relying on 17:31:04
25 the preparation I've done and the documents I've 17:31:07

Page 66

CONFIDENTIAL

1 read. 17:31:09

2 Q. And for that particular issue, what 17:31:11

3 preparation did you do? 17:31:15

4 A. I reviewed a set of documents that had 17:31:18

5 been produced in this -- in this case, and I asked 17:31:21

6 some of the people that I spoke to in preparation 17:31:25

7 what their recollection was around assessments of 17:31:30

8 revenue impact and net profits. 17:31:34

9 Q. And who were the people that you spoke to 17:31:38

10 on that topic? 17:31:41

11 A. I would have spoken to Eddie O'Neil, 17:31:45

12 Ime Archibong, and -- I'm trying to remember who I 17:31:52

13 spoke to about what -- and I think Francisco 17:32:01

14 Varela. 17:32:14

15 Q. Mr. Cross, based on your preparation with 17:32:21

16 regard to Topic 6, do you believe you are 17:32:25

17 reasonably educated to testify on these matters, 17:32:28

18 with the one caveat of the communication piece? 17:32:31

19 A. I've done my best to be prepared to 17:32:34

20 testify on these matters, yes. 17:32:36

21 Q. Okay. So do you believe you are 17:32:37

22 reasonably educated to testify on these matters? 17:32:39

23 A. I believe I'm reasonably educated to 17:32:43

24 testify on these matters. 17:32:46

25 Q. And do you agree that the notice concerns 17:32:47

CONFIDENTIAL

1 information that is known or reasonably available 17:32:50
2 to Facebook? 17:32:53
3 A. That matches my understanding; yes, known 17:32:56
4 or reasonably available to Facebook. 17:33:02
5 Q. So let's look more at Topic 6. 17:33:05
6 And this topic, obviously, concerns 17:33:08
7 friend-sharing. Right? 17:33:16
8 A. The topic concerns the development of 17:33:19
9 friend-sharing, as I understand it, yes. 17:33:22
10 Q. And tell me: What was the purpose of 17:33:24
11 friend-sharing for Facebook? 17:33:26
12 A. To help me answer that, can you define for 17:33:30
13 me what you think you mean by the phrase 17:33:32
14 "friend-sharing"? 17:33:34
15 Q. That is an excellent question, and so let 17:33:35
16 me ask you: 17:33:38
17 How does Facebook -- what does Facebook 17:33:40
18 mean by the term "friend-sharing"? 17:33:42
19 A. In this context, my understanding of the 17:33:47
20 phrase "friend-sharing" is where a Facebook 17:33:51
21 application would be able to access some 17:33:54
22 information about an app user's friends that hadn't 17:33:58
23 necessarily explicitly used that application. 17:34:04
24 Q. And can we expand the definition to also 17:34:11
25 cover the context in which private APIs are used to 17:34:14

CONFIDENTIAL

1 give access to friend information, or would that be 17:34:19
2 covered by what you said? 17:34:24

3 A. It's hard to answer that question given 17:34:30
4 the -- the definition of "private API" being a wide 17:34:31
5 range of things would be classified or classifiable 17:34:37
6 as private APIs; many not limited -- or not 17:34:40
7 involving friend-sharing in any way. 17:34:46

8 Q. And I appreciate that, and so I'm asking 17:34:48
9 specifically about private APIs that provided 17:34:51
10 access to friend-sharing information. 17:34:54

11 I mean, I guess I should ask: Private 17:35:01
12 APIs did, in fact, for some partners provide access 17:35:03
13 to friend information. Right? 17:35:06

14 A. There were some partners who had access to 17:35:12
15 information that users had authorized the 17:35:18
16 application to access that included friend 17:35:23
17 information. 17:35:29

18 Q. Okay. And so when I use the phrase 17:35:30
19 "friend-sharing" for purposes of this deposition, I 17:35:33
20 intend to mean any friend-sharing, when it was via 17:35:35
21 private APIs or otherwise via APIs on the Platform. 17:35:40

22 Is that fair? 17:35:46

23 A. I think we should -- I'll try and call out 17:35:49
24 where that distinction is important because there's 17:35:52
25 a number of different ways in this -- that these 17:35:56

CONFIDENTIAL

1 things worked. 17:36:00

2 I understand your -- your initial 17:36:01

3 understanding of -- I refer back to my definition 17:36:04

4 of "friend-sharing," and I will try and -- I will 17:36:08

5 try and call out where I see a distinction between 17:36:12

6 friend-sharing as it was available to regular, 17:36:16

7 nonwhitelisted developers and via private APIs. 17:36:21

8 Q. I appreciate that. And I have some 17:36:28

9 questions, too, that separate along those lines, so 17:36:29

10 I think that will work quite well. 17:36:32

11 And I asked you what the purpose of 17:36:34

12 "friend-sharing" was. 17:36:35

13 So with that definition of 17:36:37

14 "friend-sharing," can you describe what the purpose 17:36:37

15 was? 17:36:39

16 A. Friend-sharing was an inherent part of the 17:36:42

17 Facebook Platform as it was built, starting in 17:36:47

18 2007, to allow app developers to build engaging 17:36:50

19 social experiences. 17:36:55

20 In many cases, a user would be the first 17:37:02

21 person to -- they know to authorize an application, 17:37:05

22 and in order for that application to build an 17:37:12

23 engaging social experience, the application would 17:37:14

24 have access to a subset of the information that 17:37:18

25 that user could see on Facebook. 17:37:23

Page 70

CONFIDENTIAL

1 The original premise of the Facebook 17:37:26
2 Platform is the -- the app that a user was 17:37:28
3 authorizing would be able to see things that they 17:37:34
4 could also see on Facebook. 17:37:39

5 Q. And who came up with the idea of 17:37:43
6 friend-sharing? 17:37:45

7 Is there a particular person? 17:37:46

8 A. I don't know. We -- I don't know the 17:37:49
9 specific name of the person who came up with 17:37:54
10 friend-sharing. 17:37:56

11 The ability to access information about 17:37:57
12 the friends of a person using an application was, 17:38:04
13 as I understand it, part of the Facebook Developer 17:38:10
14 Platform from its inception; and so the people 17:38:12
15 involved in developing the Facebook Platform would 17:38:15
16 have been the people determining how it operated. 17:38:17

17 Q. And was Mark Zuckerberg involved in the 17:38:23
18 development of the platform? 17:38:27

19 A. There were a number of people involved in 17:38:31
20 the development of the platform circa 2007, when it 17:38:33
21 was launched. I imagine Mark was aware that this 17:38:36
22 platform was launching. I don't know how much he 17:38:41
23 was involved in the development of the platform. 17:38:45

24 Q. And do you know if Mark Zuckerberg had 17:38:49
25 anything to say one way or the other about whether 17:38:55

CONFIDENTIAL

1 friend-sharing should be part of the platform at 17:38:57
2 its outset? 17:38:59

3 A. I have not seen any documents or 17:39:01
4 communication that would indicate how the decisions 17:39:04
5 as to how the platform was designed were -- were 17:39:11
6 come to. 17:39:14

7 Q. And would you agree that the 17:39:17
8 friend-sharing APIs provided a significant amount 17:39:21
9 of information about users to app developers? 17:39:27

10 A. Can you help me understand what you mean 17:39:33
11 by the "friend-sharing APIs"? 17:39:34

12 That's not a term I'm familiar with. 17:39:36

13 Q. Well, what is the term you use to describe 17:39:38
14 the different APIs that provided for access to 17:39:40
15 friend information? 17:39:44

16 A. They would just be called the "APIs." The 17:39:48
17 Likes API, for example, would be one. And then 17:39:52
18 that API could be called in a number of different 17:39:57
19 contexts. 17:40:00

20 Q. And weren't there a number of APIs that 17:40:01
21 had the word "friends" in them? 17:40:04

22 A. There were a number of permissions that 17:40:08
23 had the words "friends" in them. There may have 17:40:10
24 been some APIs with the word "friends" in, but I -- 17:40:14
25 again, the difference between APIs and permissions 17:40:18

CONFIDENTIAL

1 is an important concept to draw. 17:40:21

2 Q. Okay. Well, let's talk about permissions, 17:40:24

3 then. 17:40:26

4 So when I've seen lists of what I've been 17:40:27

5 referring to as "APIs" that say "friends video 17:40:30

6 watch" or "friends posts" or "friends whatever," 17:40:33

7 I've been -- I think of those as APIs. 17:40:36

8 But you're telling me I should think of 17:40:39

9 those as permissions. 17:40:42

10 A. There's a -- in Graph API Version 1, there 17:40:44

11 was a specific set of permissions that were 17:40:47

12 referred to as the "friends permissions." 17:40:50

13 And I think that's the most proper way to 17:40:53

14 refer to them. 17:40:57

15 Q. And were friends permissions widely used 17:40:59

16 permissions prior to the implementation of 17:41:03

17 Graph API Version 2? 17:41:06

18 A. Can you help me understand what you mean 17:41:09

19 by "widely used"? 17:41:10

20 Q. Well, what does that term just naturally 17:41:13

21 mean to you? 17:41:17

22 A. It could mean a number of different 17:41:18

23 things. It could mean whether or not they were 17:41:20

24 frequently asked by applications; regularly granted 17:41:23

25 by users. 17:41:31

Page 73

CONFIDENTIAL

1 Hard to answer without the specifics. 17:41:32

2 Q. Well, let's start with frequently called 17:41:34

3 by applications. 17:41:36

4 Were friends permissions frequently called 17:41:40

5 by applications? 17:41:42

6 A. They were -- friend permissions were 17:41:45

7 certainly requested by many applications, but many 17:41:48

8 applications -- I think the majority of 17:41:51

9 applications on the Facebook Developer Platform 17:41:55

10 would not have requested -- would not have 17:41:58

11 typically requested access to friends information. 17:42:00

12 Q. And -- but a tremendous volume of user 17:42:04

13 data was made accessible through friends 17:42:08

14 permissions, wouldn't you say? 17:42:11

15 A. I am not sure what you mean by 17:42:14

16 "tremendous." 17:42:15

17 The friend permissions allowed 17:42:17

18 applications on the Facebook Platform to access 17:42:20

19 information about an app user's friends. 17:42:22

20 Q. And Facebook was concerned about the 17:42:25

21 amount of information that was made available via 17:42:27

22 the friends permissions. Correct? 17:42:30

23 A. There were discussions internally about 17:42:34

24 how the friend permissions were being used by 17:42:38

25 applications. 17:42:42

CONFIDENTIAL

1 MR. LOESER: Why don't we put up an 17:42:53
2 exhibit. And -- Tab 4, which would be 331 now? 17:42:54
3 332. All right. We're going to mark 17:43:03
4 Exhibit 332. 17:43:06
5 (Deposition Exhibit 332 was marked for 17:43:07
6 identification.) 17:43:09
7 BY MR. LOESER: 17:43:12
8 Q. And over the course of the day, I'm going 17:43:12
9 to be referring to "tabs." That's really just for 17:43:15
10 our benefit over here. A document will magically 17:43:18
11 appear on your screen that are tabs for me but are 17:43:21
12 Bates numbers for you. So -- and exhibit numbers. 17:43:25
13 This is a slipcover sheet which is not the 17:43:34
14 document itself that has the metadata for the 17:43:37
15 document. 17:43:39
16 So if we can go to the next page of the 17:43:40
17 document, I'm showing you an email from the name 17:43:42
18 that we can't say that we have agreed to call "KP" 17:43:45
19 to a number of people, including Allison Hendrix, 17:43:50
20 dated September 27, 2013. 17:43:54
21 Is that the document that's in front of 17:43:57
22 you? 17:44:00
23 A. That's the document I see, yes. 17:44:01
24 Q. And can you look at the first paragraph, 17:44:09
25 the first full paragraph of that document? 17:44:11

Page 75

Page 76

CONFIDENTIAL

1 Q. Could it be information about Facebook 17:45:28
2 users? 17:45:30
3 Does that seem like a reasonable 17:45:31
4 interpretation of that phrase? 17:45:32
5 A. Looking at the API call here, this 17:45:35
6 would -- my understanding is this is referring to 17:45:40
7 the number of requests to a user ID, like a user -- 17:45:43
8 the user -- what we would call the "user method" of 17:45:49
9 the Graph API. 17:45:52
10 Q. Okay. And is it a fair interpretation 17:45:54
11 that KP was surprised at the volume of identity 17:45:57
12 data -- identity data acquired by third parties who 17:46:02
13 were calling on friends permissions? 17:46:06
14 A. No. 17:46:13
15 Q. How do you interpret this email? 17:46:16
16 A. I interpret this as he uses the word 17:46:19
17 "surprised," and he uses the phrase "identity 17:46:24
18 data." 17:46:29
19 But the three -- there were -- two of the 17:46:31
20 three examples here are -- one of the three 17:46:34
21 examples is about the user method, and the friends 17:46:37
22 list and the user feed are two of the other three 17:46:42
23 things he talks about here. 17:46:45
24 He does not specifically refer in this 17:46:48
25 email to friends data. 17:46:50

Page 77

CONFIDENTIAL

1 Q. And what do you think he means when he 17:46:54
2 says -- or what -- how would Facebook interpret the 17:46:56
3 phrase that he was "surprised to find out we were 17:46:59
4 giving out a lot here for no obvious reason"? 17:47:01

5 A. My interpretation is that the number of 17:47:09
6 API calls seems -- he's -- he's surprised by the 17:47:12
7 number of API calls, although it doesn't refer 17:47:20
8 specifically to the amount of data that was made 17:47:25
9 available. 17:47:27

10 Q. And why would the -- why did the number of 17:47:30
11 API calls matter? 17:47:33

12 A. The number of API calls is an easily 17:47:37
13 identifiable, retrievable number. It's potentially 17:47:40
14 indicative of the amount of utilization that those 17:47:48
15 mentioned apps were calling the API for. 17:47:53

16 Q. And if you look at the first example he 17:47:59
17 provides here, "Identity Data -- get/user Sunrise 17:48:03
18 (35K MAUs): 4,000 -- 4,82M requests in 30 days," I 17:48:07
19 interpret this to mean 35,000 monthly average 17:48:15
20 users. Is that right? 17:48:18

21 A. "MAUs" means monthly active users. 17:48:21

22 Q. So Sunrise has 35,000 monthly active 17:48:26
23 users, right, according to this? 17:48:29

24 A. According to this, when the data was 17:48:32
25 pulled by whoever pulled the data, it suggests that 17:48:33

CONFIDENTIAL

1 Sunrise had 35,000 monthly active users. 17:48:37

2 Q. Okay. And it had what appears to be 17:48:41

3 4.82 million requests in 30 days. 17:48:43

4 Is that what that says? 17:48:47

5 A. That's what I read from the document. 17:48:48

6 Q. So there were 138 times more requests than 17:48:51

7 there were users in the last 30 days. 17:48:55

8 A. I can't do the math in my head, but I 17:49:00

9 understand -- 17:49:03

10 Q. He has it -- yeah, sorry to interrupt, but 17:49:04

11 the math is there. It says "138X." Right? 17:49:07

12 A. I see "138S" on the page, yeah. 17:49:10

13 Q. You're saying that you're not sure his 17:49:13

14 math is right, but -- right? 17:49:14

15 A. Yeah, I'm not doing a -- I'm not doing the 17:49:17

16 math in my head. I'm just reading the numbers off 17:49:19

17 the page. 17:49:22

18 Q. And what does it suggest to Facebook if -- 17:49:22

19 if there are 138 times as many requests for 17:49:26

20 identity data than there are monthly active users? 17:49:31

21 A. It might suggest that the app was not very 17:49:37

22 efficiently developed. 17:49:40

23 Q. Might it also suggest that the app was 17:49:43

24 obtaining information in ways that weren't related 17:49:45

25 to the use case for the app? 17:49:51

Page 79

CONFIDENTIAL

1 A. It might mean that the app was making 17:49:56
2 requests for user data. It doesn't necessarily 17:49:59
3 indicate that that's inappropriate given the use 17:50:02
4 case of the app. 17:50:08

5 Q. Okay. But here in this email. KP 17:50:09
6 indicated that he was "surprised to find out that 17:50:12
7 we were giving out a lot -- giving out a lot here 17:50:15
8 for no obvious reason." 17:50:18

9 And then he says, "Just to give you an 17:50:20
10 idea," and he indicates how much is being given 17:50:22
11 out. Right? 17:50:24

12 A. Well, he's indicating how many API calls 17:50:25
13 were made in a 30-day period, but he's not making 17:50:27
14 any assertion or diagnosis as to why that was the 17:50:31
15 way it was. 17:50:40

16 Q. Right. But he's indicating that it's -- 17:50:41
17 that -- those figures he provided may satisfy and 17:50:46
18 provide meaning to the statement, "giving out a lot 17:50:50
19 here," would you say? 17:50:53

20 A. I think he's -- by "giving out a lot," 17:50:56
21 he's likely referring to the number of API calls 17:50:59
22 made, but it doesn't necessarily refer to -- it 17:51:02
23 doesn't necessarily mean he's diagnosed that -- you 17:51:09
24 know, information about different users is being 17:51:14
25 exposed here. 17:51:17

CONFIDENTIAL

1 It's eminently possible that Sunrise 17:51:19
2 queried the API for its app users very 17:51:23
3 inefficiently. 17:51:28

4 Q. And for Facebook, is that considered 17:51:31
5 somewhat of a red flag? 17:51:33

6 A. I think there's a number of reasons why 17:51:39
7 Facebook might be interested in how applications 17:51:41
8 are calling the API. 17:51:43

9 One example might be that if the app is 17:51:45
10 developed inefficiently, then there is an impact on 17:51:50
11 Facebook's ability to serve those requests 'cause 17:51:54
12 every time the API is called, a lot of code has to 17:51:57
13 be run. 17:52:01

14 Q. And do you think that's what KP was 17:52:04
15 sending this email about? 17:52:08

16 A. I'm not -- there's no reference here as to 17:52:13
17 exactly what -- whether or not that was a reason 17:52:15
18 that KP was sending this email. 17:52:19

19 I think my understanding from reading this 17:52:21
20 is that KP was curious as to the API call rate 17:52:24
21 relative to the number of monthly active users of 17:52:32
22 the app. 17:52:36

23 Q. And in the context of the subject of this 17:52:39
24 email, which is "Proactive and Reactive removal of 17:52:42
25 permissions," what do you think KP -- what was 17:52:45

Page 81

CONFIDENTIAL

1 Facebook's concern about call rate? 17:52:49

2 A. From this email, it's hard to know 17:52:58

3 specifically what the issue was. I -- I was not on 17:53:00

4 this email thread in a personal capacity, and I was 17:53:05

5 unable to talk to KP about what he meant because 17:53:11

6 he's no longer at the company. 17:53:15

7 Q. And in stepping away from this email, was 17:53:19

8 Facebook aware that friends permissions were often 17:53:23

9 called by apps in ways that exceeded the use case 17:53:29

10 for the app? 17:53:35

11 A. At the time there was a number of 17:53:40

12 discussions about how apps were using the 17:53:41

13 information they got via the API. One of those 17:53:46

14 reasons would have been that there were some 17:53:53

15 questions about how that information was being 17:53:58

16 used. 17:54:00

17 Q. And what's the time frame you're referring 17:54:02

18 to in your answer? 17:54:04

19 A. My answer here, I'm referring to around 17:54:08

20 2013, the -- roughly when I have reviewed documents 17:54:12

21 about this time, where there was a number of 17:54:15

22 discussions taking place about how apps were using 17:54:18

23 the Facebook Developer Platform and which 17:54:23

24 particular APIs and permissions they were using. 17:54:27

25 Q. The way friend-sharing was set up, a 17:54:33

CONFIDENTIAL

1 Facebook user decided whether an app or integration 17:54:35
2 partner got access to the user's friend data. 17:54:39
3 Right? 17:54:43
4 A. The way the Facebook Platform worked is 17:54:44
5 that users would authorize an application to access 17:54:46
6 their information. They could also, in API 17:54:49
7 Version 1 and before, grant the application access 17:54:56
8 to information about -- some information about that 17:54:58
9 user's friends who had not -- who were not 17:55:05
10 necessarily using the application. 17:55:07
11 Q. Okay. And on an app-by-app basis, the 17:55:09
12 friends themselves did not have a say in whether 17:55:16
13 their information was made available to the app 17:55:19
14 that their friend used. Right? 17:55:20
15 A. My understanding is that developers -- 17:55:24
16 users could opt out of the Facebook Developer 17:55:27
17 Platform, and that would prevent their information 17:55:29
18 being shared with most third parties. 17:55:33
19 Q. Okay. And that -- and let me make sure I 17:55:37
20 understand your testimony. 17:55:41
21 The only way to stop your friends from 17:55:43
22 sharing your information with an app was to turn 17:55:45
23 off apps altogether on the Platform. Is that 17:55:47
24 right? 17:55:49
25 A. The controls available to users changed 17:55:54

CONFIDENTIAL

1 over time. For a period, there was a way for users 17:55:57
2 to access a setting -- an area of settings called 17:56:04
3 "Apps Others Use" -- I think I'm getting that 17:56:08
4 right -- which allowed them to control which 17:56:11
5 subsets of their information were available to 17:56:14
6 applications via the friend permissions. 17:56:19

7 Q. And what period was that choice available? 17:56:22

8 A. I don't know specifically when that -- 17:56:31
9 those settings were made available or were removed. 17:56:33
10 It was certainly available, as I understand it, in 17:56:37
11 around 2014. 17:56:40

12 Q. And why was that choice taken away from 17:56:48
13 users? 17:56:51

14 A. My understanding is that that area of 17:56:52
15 settings was removed when there were no or few 17:56:54
16 third-party applications that had access to that 17:57:04
17 information via the APIs. 17:57:08

18 Q. And do you have an understanding -- or 17:57:15
19 what is Facebook -- well, strike that. 17:57:16

20 What was the time period for which the 17:57:18
21 only way to stop your friends from sharing 17:57:20
22 information was to turn off apps altogether on the 17:57:23
23 Platform? 17:57:25

24 A. To answer that question, I'd need to know 17:57:29
25 exactly when the Apps Others Use setting was 17:57:31

CONFIDENTIAL

1 introduced, which is a date I don't have, I'm 17:57:36
2 afraid. 17:57:38

3 Q. Okay. And will you follow up and provide 17:57:39
4 that information? 17:57:41

5 You would provide it to your counsel, who 17:57:46
6 can provide it to us. 17:57:47

7 A. I'm sure we could try and attempt to 17:57:49
8 follow up on determining when those settings 17:57:51
9 were -- were introduced. 17:57:54

10 Q. And where would you go to search for the 17:57:57
11 answer to that question? 17:57:59

12 A. My immediate step would be to ask the 17:58:08
13 engineers who had worked on that feature or may 17:58:10
14 have worked on that feature to try and identify 17:58:15
15 when that feature was made available. 17:58:20

16 Q. Thank you. During the time that the only 17:58:27
17 way to turn off -- or to block your friend from 17:58:29
18 sharing your information was by turning off apps 17:58:33
19 altogether, can you explain why friend-sharing was 17:58:37
20 set up that way? 17:58:41

21 A. The original design of the Facebook 17:58:45
22 Platform rested on a very simple premise, which is 17:58:47
23 that the user has access to information by using 17:58:54
24 Facebook, and the user could allow apps to access 17:58:58
25 the information that they could see on Facebook, 17:59:04

CONFIDENTIAL

1 and that would allow those applications to build 17:59:06
2 rich, engaging social experiences. 17:59:11
3 That was the simple, clear, founding 17:59:14
4 premise of the Facebook Developer Platform. 17:59:18
5 Q. From your testimony, it sounds like, just 17:59:22
6 from a technical standpoint, it is possible for 17:59:25
7 Facebook to provide a setting through which, on an 17:59:27
8 app-by-app basis, Facebook users can determine 17:59:32
9 whether their friends share their information. 17:59:37
10 Right? 17:59:44
11 A. The testimony I think you're referring to 17:59:44
12 from a few minutes ago refers to a set of settings 17:59:46
13 called "Apps Others Use," which allowed users to 17:59:50
14 opt out of certain types of their information being 17:59:55
15 shared with any apps their friend used. 17:59:59
16 My understanding is that was not an 18:00:03
17 app-by-app setting. 18:00:05
18 Q. Okay. I want to make sure I understand 18:00:10
19 that. 18:00:13
20 So was there any time when a Facebook user 18:00:13
21 could block a particular app that one of their 18:00:18
22 friends used? 18:00:23
23 Let's call the app "friend's app." So was 18:00:25
24 there at any time a setting where a user would have 18:00:30
25 the option of saying no to a friend's app getting 18:00:32

Page 86

CONFIDENTIAL

1 their information because their friend used that 18:00:37
2 app? 18:00:40
3 A. The feature that enables -- there was a 18:00:42
4 feature called "Blocks" which allows a user to 18:00:47
5 block a specific application. 18:00:50
6 My understanding is that that would mean 18:00:52
7 the application would not have access to their 18:00:55
8 information by the -- 18:00:58
9 Q. So would the user get a notice, say, from 18:01:04
10 friend's app that said, "Your friend wants to share 18:01:07
11 your information. Do you -- are you providing -- 18:01:11
12 like, will you authorize that?" 18:01:13
13 Is that how it functioned? 18:01:15
14 A. The way friend-sharing worked was that a 18:01:17
15 user could authorize an application, grant 18:01:20
16 permissions to that application to access -- well, 18:01:24
17 actually, let me back up. 18:01:28
18 The -- the permissions were introduced 18:01:30
19 into the API sometime after the Facebook Developer 18:01:33
20 Platform was first launched. 18:01:39
21 When -- in the original version, when a 18:01:44
22 friend -- when a user authorized an application, 18:01:46
23 that application had access to information about 18:01:48
24 that user and some information about that user's 18:01:52
25 friends. 18:01:55

CONFIDENTIAL

1 There were -- the user -- the user's 18:01:57

2 friends would not get notified that their friend 18:02:00

3 was using the application. There would be no 18:02:02

4 placebo active notifications. 18:02:05

5 Q. And what was that time period? 18:02:08

6 A. The way the permissions -- the granular 18:02:11

7 permissions were launched in April 2010, and so the 18:02:16

8 specific feature I'm referring to there is prior to 18:02:21

9 April 2010, apps would access a range of 18:02:27

10 information without granular permissions needed to 18:02:35

11 be granted. 18:02:38

12 Starting in April 2010, users granted 18:02:40

13 specific permissions to an application determining 18:02:43

14 which data that application had access to. 18:02:46

15 Q. Right. 18:02:52

16 A. Through both of those periods, when a user 18:02:52

17 installed an application, their friends would not 18:02:56

18 be notified that they had done so. 18:02:59

19 Q. Okay. And was there a point in time when, 18:03:03

20 before a user could share the user's friends 18:03:04

21 information, the users got notice that the app was 18:03:10

22 seeking friends information? 18:03:13

23 A. I'm not aware of any time where a 18:03:16

24 nonapp-user would be notified that one of their 18:03:20

25 friends was using an application. 18:03:23

CONFIDENTIAL

1 Q. Okay. And why was Facebook set up that 18:03:26
2 way so that friends didn't receive notification 18:03:29
3 when their users -- when their friends were trying 18:03:33
4 to provide access to their information? 18:03:36

5 A. The original premise of the Facebook 18:03:41
6 Platform was that when a user was using an 18:03:42
7 application, that application had access to, at the 18:03:48
8 limit, potentially, anything that that user would 18:03:52
9 be able to see on Facebook. 18:03:55

10 It was the user taking the information 18:03:57
11 that had been shared with them and making that 18:03:59
12 available to an application. 18:04:02

13 Q. And have you seen in documents that 18:04:07
14 structure referred to as "authorization by proxy"? 18:04:10

15 A. I don't recall seeing that phrase in 18:04:16
16 particular. 18:04:17

17 Q. So, now, could Facebook have set up the 18:04:24
18 platform so that before an app could get access to 18:04:26
19 a person's information, where that person was the 18:04:30
20 friend of someone using the app, that they could 18:04:33
21 have received notice that this app is attempting to 18:04:36
22 gain the nonapp user's information? 18:04:40

23 A. It's technically possible that when a user 18:04:50
24 authorized an application and granted friends 18:04:52
25 permissions, that a notification could have been 18:04:58

CONFIDENTIAL

1 sent. That's technically possible. 18:05:03

2 It would have introduced a number of 18:05:07

3 unusual experiences, however. 18:05:09

4 Q. And what do you mean by that? 18:05:15

5 A. So sometimes I'm logging into an 18:05:21

6 application or I'm using an application for the 18:05:24

7 very first time. I'm not necessarily, you know -- 18:05:26

8 I'm using an application for the very first time. 18:05:30

9 It might be unexpected for Facebook to 18:05:33

10 broadcast -- to send a notification to some of my 18:05:39

11 friends that I was using the application. 18:05:46

12 Q. Now, unexpected or not, it would have 18:05:49

13 given those friends the ability to choose not to 18:05:51

14 share information in that context. Right? 18:05:54

15 A. So, again, in this case, the -- the way 18:05:58

16 that the Facebook Developer Platform was originally 18:06:01

17 set up was that an app -- based on the simple 18:06:03

18 founding premise that when -- if there was 18:06:10

19 information that a user could see on Facebook 18:06:13

20 because it had been shared with them on Facebook, 18:06:15

21 the -- that information would also be available to 18:06:18

22 applications that user was using. 18:06:23

23 Q. And were there discussions at Facebook of 18:06:30

24 the pros and cons of that approach to treating 18:06:33

25 information about users' friends? 18:06:37

CONFIDENTIAL

1 MR. LOESER: Okay. If we could go to 18:08:08
2 Tab 5. 18:08:10
3 I'm going to introduce what will be marked 18:08:15
4 as Exhibit 333. 18:08:17
5 (Deposition Exhibit 333 was marked for 18:08:29
6 identification.) 18:08:30
7 BY MR. LOESER: 18:08:31
8 Q. In a moment you'll see an email from 18:08:32
9 David Poll to Eddie O'Neil and also dated 18:08:35
10 December 9, 2013. 18:08:39
11 Do you see that on your screen? 18:08:42
12 A. I do. 18:08:44
13 Q. Do you know who David Poll is? 18:08:44
14 A. David Poll was an employee of Facebook, 18:08:50
15 now Meta, in the past, and I recall him being one 18:08:54
16 of the cofounders of a company called Parse. 18:08:58
17 Q. And from -- was there discussion at 18:09:07
18 Facebook about who owned friend information; 18:09:11
19 whether it was the user's information or the 18:09:14
20 friends' information? 18:09:19
21 A. Let me just read the exhibit before I 18:09:21
22 answer your question. 18:09:23
23 Q. Sure. And I -- it's a long string, and 18:09:25
24 I'm going to be asking you about some statements 18:09:29
25 made by Eddie O'Neil and David Poll on the second 18:09:32

Page 92

CONFIDENTIAL

1 page of the email, if that helps, on the bottom. 18:09:37

2 A. (Reviewing document.) 18:09:54

3 Okay. It just scrolled. 18:09:55

4 Q. Let me apologize. Let me save some time 18:09:56

5 by just referring you to -- if you go to the second 18:09:59

6 page, this is a chat between Eddie O'Neil and 18:10:01

7 David Poll. Is that right? 18:10:04

8 A. This to me represents a chat between Eddie 18:10:07

9 and David, yes. 18:10:10

10 Q. Okay. And if you go to the bottom of the 18:10:11

11 second page, about two thirds of the way down, 18:10:13

12 Eddie O'Neil says: 18:10:17

13 "I disagree -- your friends' birthdays 18:10:19

14 aren't yours to take with you. We let you do 18:10:22

15 that today, and it's created confusion along 18:10:25

16 with regulatory/legal issues. It's also 18:10:27

17 exactly what's gotten us into trouble with 18:10:29

18 Lulu." 18:10:32

19 Do you see that? 18:10:32

20 A. I do see that. 18:10:33

21 Q. And does this -- does this suggest that at 18:10:35

22 Facebook, there was discussion about who owned -- 18:10:39

23 and I can put in air quotes -- who owned friend 18:10:43

24 information; whether it belonged to the user or 18:10:46

25 belonged to the friends? 18:10:48

Page 93

CONFIDENTIAL

1 A. My understanding, this is a discussion 18:10:54
2 about who -- who did or should have the ability to 18:10:55
3 choose how information was shared with third 18:11:04
4 parties. 18:11:09

5 It's -- I'm not sure I'd refer to it as 18:11:10
6 "who owns," but it's certainly a discussion about 18:11:13
7 the model or the models for which information could 18:11:19
8 or should be shared with third parties. 18:11:25

9 Q. And what is Mr. O'Neil referring to here 18:11:27
10 when he says "it's created confusion along with 18:11:30
11 regulatory/legal issues"? 18:11:34

12 Do you know what he's talking about? 18:11:35

13 A. When he's referring to "created 18:11:37
14 confusion," that's, in my understanding, referring 18:11:39
15 to some of the feedback that had been heard from 18:11:43
16 users about how information was being shared with 18:11:50
17 third parties. 18:11:57

18 I'm not sure what he's referring to in 18:11:58
19 terms of "regulatory/legal issues" in particular. 18:12:02

20 Q. But Facebook, obviously, knows what 18:12:08
21 regulatory and legal issues are -- were raised with 18:12:12
22 regard to friends permissions. Right? 18:12:22

23 MR. BLUME: Excuse me. I object. 18:12:26
24 Privilege. Potential privilege. If I may -- 18:12:28

25 MR. LOESER: And let me -- sorry. Go 18:12:32

CONFIDENTIAL

1 ahead, Mr. Blume. 18:12:34

2 MR. BLUME: I just was asking permission 18:12:36

3 to instruct the witness unless you want to 18:12:38

4 rephrase. 18:12:40

5 MR. LOESER: Sure. 18:12:42

6 Q. Really, the point of my question was, you 18:12:42

7 don't know the answer to this question what the 18:12:44

8 regulatory or legal issues were, but Facebook knows 18:12:46

9 the answer to that. Right? 18:12:49

10 A. Eddie here is likely referring to a -- 18:12:55

11 it's hard to know what the specific "regulatory and 18:13:00

12 legal issues" he's referring to are. 18:13:02

13 So I -- it's hard to answer on behalf of 18:13:08

14 the company in terms of specifically what he's 18:13:11

15 referring to. 18:13:13

16 Q. And when he refers to -- refers below to 18:13:15

17 "gotten us into trouble with Lulu," do you know 18:13:19

18 what he's referring to? 18:13:24

19 A. Lulu was an application that had an 18:13:26

20 unusual behavior. I don't recall specifically in 18:13:33

21 detail what the application did other than it -- it 18:13:38

22 allowed -- I think, if I remember correctly, women 18:13:45

23 in particular -- specifically women, to rate in 18:13:50

24 some way their friends -- sorry -- rate other 18:13:52

25 people. 18:13:59

CONFIDENTIAL

1 But I -- I don't want to get into the -- 18:14:01

2 that's what I remember. I don't want to get into 18:14:03

3 the specifics. I haven't read up on the -- exactly 18:14:06

4 the specifics of this, but I've heard reference to 18:14:10

5 Lulu and read references to Lulu in the documents 18:14:13

6 I've read in preparation for this testimony. 18:14:17

7 Q. And that was -- that would be one of those 18:14:22

8 concerns that you would consider related to how 18:14:24

9 friend permissions were used by apps. Right? 18:14:28

10 A. My understanding is that the way Lulu used 18:14:32

11 friend permissions was -- was something that there 18:14:36

12 was concern about at the time. 18:14:44

13 Q. And specifically the -- the nonapp users, 18:14:45

14 or the friends of the user, expressed concern about 18:14:50

15 how their information was being used by the app. 18:14:53

16 Right? 18:14:56

17 A. There were general concerns at the time 18:15:00

18 about how friends information had been -- had been 18:15:02

19 used. I -- I don't recall reading anything 18:15:05

20 specific about -- I've seen Lulu mentioned, but I'm 18:15:12

21 not sure in exactly which -- which contexts. 18:15:16

22 Q. And if you look at the next line in 18:15:20

23 Mr. O'Neil's chat, it says: 18:15:23

24 "It's also accrued a huge amount of value 18:15:26

25 to developers at great expense to Facebook as 18:15:29

CONFIDENTIAL

1 a business." 18:15:31

2 And do you know what he is referring to 18:15:32

3 here? 18:15:34

4 A. There's a couple of terms here. 18:15:38

5 Which one do you want me to focus on 18:15:40

6 first? 18:15:42

7 Q. Well, is this a reference to the amount of 18:15:43

8 information that friends permissions was making 18:15:45

9 available to developers? 18:15:48

10 A. Reading this, it seems relevant to the 18:15:55

11 friend permissions, but "huge amount of value" may 18:15:59

12 refer to a number of different ways that a 18:16:03

13 developer would perceive the -- the value of the 18:16:07

14 experience that they had got by integrating with 18:16:13

15 the Facebook Platform. 18:16:15

16 Q. And what are -- what -- how can you 18:16:17

17 describe or what are the different ways that 18:16:21

18 developers obtained value from friends permission 18:16:23

19 information? 18:16:28

20 A. So the friend permissions allowed 18:16:32

21 applications to build rich, engaging social 18:16:35

22 experiences even when, you know, one -- let me 18:16:38

23 start that again to make sure I frame this 18:16:45

24 correctly for you. 18:16:48

25 One of the benefits of the friend 18:16:49

Page 97

CONFIDENTIAL

1 permissions for developers was that they could 18:16:51
2 build rich, engaging social experiences, including 18:16:54
3 those where not all of a user's friends were also 18:16:59
4 using the same application; also using the same 18:17:04
5 app. 18:17:09

6 That could manifest value in different 18:17:09
7 ways. It could enable applications to be more 18:17:12
8 retentive, so they were more frequently used a 18:17:19
9 whole number of different ways that the developers 18:17:23
10 might benefit from building social experiences. 18:17:26

11 Q. And what are the ways that providing 18:17:32
12 access to friends information was at "great expense 18:17:34
13 to Facebook as a business"? 18:17:39

14 A. So one of the ways that this might be 18:17:47
15 considered an expense is in trust and reputation. 18:17:50
16 Because of the way the APIs functioned originally. 18:17:57

17 And, as I've testified previously, there 18:18:03
18 were some concerns that we'd heard from users about 18:18:06
19 how the Platform worked, and that confusion could 18:18:10
20 have impacted the trust in Facebook as a product. 18:18:17

21 Q. And can you -- are there other types of 18:18:24
22 expense that Facebook recognized related to 18:18:28
23 providing access to friends permissions to 18:18:31
24 developers -- or partners, for that matter? 18:18:34

25 A. One way that you might classify that is 18:18:38

CONFIDENTIAL

1 the computational energy it took to serve these 18:18:45
2 requests. 18:18:50

3 Actually serving an API call requires 18:18:52
4 compute, and so that's another way that providing 18:18:56
5 the platform in general and certain APIs would have 18:19:02
6 been an expense to Facebook. 18:19:08

7 Q. And what about the value of the -- of the 18:19:12
8 friend information itself? 18:19:14

9 Is that information valuable to Facebook 18:19:17
10 as a business, from a monetization standpoint? 18:19:19

11 A. Sorry. Can you help me understand the 18:19:25
12 context of your question? 18:19:27

13 That was a very general -- a general 18:19:29
14 question. I would like to get to the specifics. 18:19:31

15 Q. Sure. I'm just trying to understand from 18:19:33
16 Facebook's perspective what the great expense to 18:19:36
17 Facebook as a business was, and you've given me 18:19:39
18 some examples. 18:19:42

19 And I'm wondering if there's an economic 18:19:42
20 impact as well that would be covered by providing 18:19:45
21 thousands of apps with access to friend 18:19:47
22 permissions. 18:19:50

23 A. I'm not aware of any analysis that was 18:19:53
24 done that specifically determined -- or attempts to 18:19:56
25 determine the -- the financial value of friend 18:20:01

CONFIDENTIAL

1 permissions or the friend data as part of the 18:20:08
2 Developer Platform. 18:20:11
3 Q. Okay. Let's look at David Poll's text at 18:20:15
4 the bottom of the page. And he states: 18:20:18
5 "If you want to give users a way to 18:20:21
6 protect their data, it seems like the best 18:20:23
7 way to do that is to give them a setting like 18:20:26
8 'apps can't see my data unless I've 18:20:29
9 specifically allowed it.'" 18:20:31
10 Do you see that? 18:20:32
11 A. I see that on the screen, yes. 18:20:33
12 Q. And as you testified earlier, that's the 18:20:35
13 type of setting that Facebook could have 18:20:37
14 technically implemented had it chosen to do so. 18:20:40
15 A. Let me just read the statement to make 18:20:44
16 sure I can answer accurately for you. 18:20:46
17 (Reviewing document.) 18:21:00
18 THE WITNESS: There's a lot of context 18:21:19
19 here to unpack. So I'm just trying to understand 18:21:21
20 what David Poll is speaking about. 18:21:24
21 So my understanding is that the "apps 18:21:38
22 others use" setting was partly delivered on the 18:21:41
23 expectation that -- that David is referring to 18:21:51
24 here. 18:21:54
25 So it would have been technically possible 18:21:59

Page 100

CONFIDENTIAL

1 to allow a user to choose whether or not an 18:22:01
2 application had access to their data. 18:22:10
3 BY MR. LOESER: 18:22:14
4 Q. All right. We've talked a bit about 18:22:20
5 the -- I'm sorry, go ahead. 18:22:22
6 A. Sorry. Carry on. 18:22:25
7 Q. Okay. So moving on, the -- I've asked you 18:22:26
8 some questions about the different permissions, and 18:22:28
9 you've provided some helpful information about the 18:22:31
10 terminology used to discuss different permissions. 18:22:33
11 I do want to make sure I have a complete 18:22:37
12 understanding of all of the different permissions 18:22:40
13 that allowed access to friend information. 18:22:44
14 And I asked before if a number of the 18:22:48
15 permissions had the word "friends" in them, and you 18:22:52
16 said "Yes." 18:22:56
17 And it's also the case the number of 18:22:57
18 permissions that provided access to friend 18:22:59
19 information did not have the word "friend" in them. 18:23:02
20 Is that right? 18:23:05
21 A. There were permissions that allowed an app 18:23:08
22 to access information about a user and that user's 18:23:11
23 friends that didn't have "friend" in the title. 18:23:17
24 Q. Okay. And I'm going to run through some, 18:23:22
25 and then you can help me understand if there are 18:23:24

Page 101

CONFIDENTIAL

1 others. 18:23:26

2 User-posts APIs are a type of -- emit 18:23:27

3 friend information. Right? 18:23:37

4 A. The user-posts API allowed an app to 18:23:38

5 access the posts of a user who had authorized the 18:23:42

6 application. 18:23:46

7 Q. And did it also provide access to the 18:23:48

8 user's friends' posts? 18:23:52

9 A. My understanding is the user-posts 18:23:56

10 permission is no. It would not have allowed an app 18:24:01

11 to access a user's friends' posts. 18:24:04

12 Q. And even where the friend responds to the 18:24:08

13 post or comments or indicates a like to a post? 18:24:10

14 A. My understanding of the way the user posts 18:24:16

15 permission worked was that it would have emitted 18:24:19

16 the posts of the user who had authorized the 18:24:23

17 application. It may have also included likes and 18:24:26

18 comments on that post. 18:24:29

19 Q. Okay. And likes and comments from a 18:24:32

20 friend would be friend information. Right? 18:24:34

21 A. Some posts, if they had only been shared 18:24:43

22 with a friend and they had been liked or commented 18:24:47

23 on by a friend, then the -- the app would be able 18:24:50

24 to see the user ID and the comment and some other 18:24:57

25 information about the comment that you could 18:25:02

Page 102

| | | |
|----|---|----------|
| 1 | construe as having been made by a friend. | 18:25:05 |
| 2 | Q. Okay. And the Event API, is that a | 18:25:08 |
| 3 | similar answer to that; that the Event API gives | 18:25:13 |
| 4 | access to events that the user attended, but any | 18:25:18 |
| 5 | comment or posts or other information from the | 18:25:21 |
| 6 | friend regarding that event, that also would be | 18:25:24 |
| 7 | accessible for the user's friends. Right? | 18:25:28 |
| 8 | A. So, again, the specifics really matter | 18:25:35 |
| 9 | here. | 18:25:37 |
| 10 | The user events permission allowed an app | 18:25:38 |
| 11 | to access the events that a user, as I understand | 18:25:41 |
| 12 | it, had marked themselves as attending or not | 18:25:45 |
| 13 | attending or had responded to in some way. | 18:25:48 |
| 14 | Through that -- through the Events API, | 18:25:56 |
| 15 | the app could also access other information about | 18:25:58 |
| 16 | that event which may have included other attendees, | 18:26:01 |
| 17 | some of whom might be the user's friends, some of | 18:26:05 |
| 18 | whom might not be, depending on the privacy setting | 18:26:09 |
| 19 | of the event and who was attending. | 18:26:14 |
| 20 | Q. Okay. And so the Events API also could | 18:26:15 |
| 21 | obtain some friends information for those reasons. | 18:26:19 |
| 22 | A. The events API may have allowed an app to | 18:26:23 |
| 23 | access information about a user's friends who were | 18:26:29 |
| 24 | attending an event that the user was attending, for | 18:26:33 |
| 25 | example. | 18:26:39 |

CONFIDENTIAL

1 Q. What is the "Pages API"? 18:26:42

2 A. The Pages API refers to a collection of 18:26:45

3 APIs that would allow an application to access 18:26:48

4 content on or information about a Facebook page. 18:26:52

5 Q. And could that API also allow access to 18:26:58

6 friends information of the user who used the app 18:27:03

7 with access to that API? 18:27:07

8 A. So the Pages API allowed an application to 18:27:12

9 access information about the page. At times, it 18:27:21

10 also allowed the application to access posts on 18:27:24

11 that page's timeline, and those posts could also 18:27:26

12 have included comments on those posts. And those 18:27:31

13 comments were publicly available on Facebook and 18:27:38

14 may have been also available by the API. 18:27:41

15 Q. And so that would include friends 18:27:44

16 information as well. Right? 18:27:46

17 A. The Pages API could be called by an 18:27:49

18 application without a specific logged-in user, and 18:27:52

19 so the information available may have included 18:28:00

20 friend information. 18:28:03

21 Q. And what is the "Groups API"? 18:28:06

22 A. The Groups API refers to a collection of 18:28:12

23 APIs which allow an app to access the groups that a 18:28:15

24 user is a member of. 18:28:21

25 Q. And could the Groups APIs also provide 18:28:26

Page 104

CONFIDENTIAL

1 access to information about friends of the app 18:28:31

2 user? 18:28:34

3 A. The Groups API would have allowed the app 18:28:37

4 to access the member list of a -- that at the time 18:28:42

5 included the member list of the groups that the 18:28:49

6 user was a member of and posts in the group that 18:28:51

7 the user was a member of. 18:28:53

8 The member list could include people who 18:28:57

9 were the app user's friends. 18:28:59

10 Q. And it could also include people who were 18:29:02

11 not the app user's friends. Right? 18:29:04

12 A. A group on Facebook can be open or closed 18:29:08

13 and secret and may contain people who are not the 18:29:14

14 user's friends, and the group's API would have 18:29:16

15 allowed the app to see the members of the group. 18:29:21

16 Q. Are you familiar with the Taggable Friends 18:29:25

17 API? 18:29:27

18 A. I am familiar with the Taggable Friends 18:29:31

19 API. 18:29:33

20 Q. And what information does that API provide 18:29:34

21 access to? 18:29:37

22 A. My understanding is that the Taggable 18:29:39

23 Friends API retrieved -- allowed an app to retrieve 18:29:43

24 a very limited set of information about the app 18:29:48

25 user's friends specifically to enable them to 18:29:51

Page 105

| | | |
|----|---|----------|
| 1 | render a tagging type-ahead. | 18:29:55 |
| 2 | Q. And what is a "tagging type-ahead"? | 18:30:01 |
| 3 | A. I think the best way to illustrate this is | 18:30:04 |
| 4 | through an example. | 18:30:06 |
| 5 | Imagine that you are a runner and you use | 18:30:07 |
| 6 | Strava, and you go on a run with me, but I am not a | 18:30:13 |
| 7 | Strava user. I track my runs using another app. | 18:30:20 |
| 8 | After the run, you might choose to share | 18:30:25 |
| 9 | your run back to Facebook, and you want to tag me, | 18:30:29 |
| 10 | one of your Facebook friends, in that story because | 18:30:33 |
| 11 | we went on the run together. | 18:30:36 |
| 12 | If I don't use Strava, then there was the | 18:30:39 |
| 13 | desire to give the app away to render a way for you | 18:30:46 |
| 14 | to tag me in that story when it was published back | 18:30:53 |
| 15 | to Facebook. | 18:30:56 |
| 16 | Q. Okay. So in that context, it provides | 18:30:59 |
| 17 | friend information about the person who doesn't use | 18:31:03 |
| 18 | Strava. | 18:31:06 |
| 19 | A. It provides a very, very limited set of | 18:31:07 |
| 20 | information about the person -- the user's friend | 18:31:10 |
| 21 | who doesn't use Strava. | 18:31:13 |
| 22 | Q. And we talked a bit about the Social | 18:31:25 |
| 23 | Context API. And you described that as an API that | 18:31:27 |
| 24 | provided information about a user and one other | 18:31:32 |
| 25 | person. | 18:31:34 |

CONFIDENTIAL

1 Do I recall that correctly? 18:31:36

2 A. That's not the intent of my testimony. 18:31:37

3 It provided the social -- it provided 18:31:43

4 social context between two app users. 18:31:46

5 So when you called the Social Context API, 18:31:50

6 it was called on behalf of a user, and you would 18:31:53

7 also specify one of that user's friends who was 18:31:56

8 also -- or another user ID of somebody who was 18:32:01

9 using the application, and the API would return 18:32:04

10 social context between those two people. 18:32:07

11 Q. And so could that API provide information 18:32:15

12 about people who are not using the app with access 18:32:18

13 to Social Context API? 18:32:22

14 A. My understanding is the information 18:32:24

15 returned by that API would be different whether or 18:32:26

16 not two users -- one of the users was using the 18:32:28

17 application and one of the users displayed in the 18:32:32

18 Social Context wasn't. 18:32:36

19 Q. And so walk me through what happens when 18:32:39

20 the -- the other person is not using the app. 18:32:44

21 What information about that person is 18:32:49

22 provided through the app? 18:32:51

23 A. I'd need to refer to the API documentation 18:32:53

24 at the time to give -- to give you specifics, but 18:32:56

25 my understanding is it would return a very limited 18:32:59

Page 107

CONFIDENTIAL

1 set of information about people that the two users 18:33:04
2 had in common that were not using the application. 18:33:09
3 Q. Okay. So let's -- let's -- let me provide 18:33:12
4 an example. Maybe this would be helpful. 18:33:15
5 So if a Facebook user watches a movie, 18:33:17
6 let's say The Godfather, and the app that user 18:33:21
7 is -- authorizes an app that has a Social Context 18:33:29
8 API permission, what other information about people 18:33:34
9 watching The Godfather, and from whom, would that 18:33:39
10 API provide access? 18:33:43
11 A. I can't -- I don't recall the specific 18:33:47
12 behavior of the API, and I think to do that, I'd 18:33:49
13 need to refer to the developer documentation that 18:33:52
14 was available at the time as to how -- how that 18:33:54
15 specific API behaved. I don't want to speculate if 18:33:57
16 I don't have the -- the facts. 18:34:01
17 Q. Well, let's try and create enough facts so 18:34:04
18 you can provide some helpful information. 18:34:06
19 Let's say a user did watch the movie 18:34:08
20 Godfather and posts on their Facebook page, "I love 18:34:11
21 the movie Godfather. I just watched it." 18:34:15
22 Explain to me how the Social Context API 18:34:20
23 would use that information and with whom it would 18:34:23
24 use it if there's an app that has Social Context 18:34:26
25 API. 18:34:29

Page 108

CONFIDENTIAL

1 A. So I need to refer to the specifics about 18:34:30
2 the -- how the social context API works. You're 18:34:33
3 asking a very -- a question that requires, you 18:34:36
4 know, a detailed answer, and I don't have in my 18:34:40
5 mind the exact behavior of how the Social Context 18:34:42
6 API worked and the context in which it worked and 18:34:47
7 the specifics of the information that would have 18:34:51
8 been returned by the API. 18:34:53

9 Q. Okay. Well, then, if you can, describe 18:34:56
10 more generally -- and I'm trying to understand from 18:34:58
11 where the Social Context API draws information. 18:35:02

12 So I know from what you said that it draws 18:35:05
13 information from the user who authorized the app. 18:35:07

14 And what other information does it draw 18:35:10
15 that pertains to that user? Like -- or from who? 18:35:13
16 Who else would be sort of folded into the -- or who 18:35:17
17 else would be in the net that that API casts? 18:35:20

18 A. The precise answer depends on the 18:35:25
19 specifics of the Social Context API. It's one of 18:35:29
20 the APIs that I don't have the details of exactly 18:35:31
21 how it worked -- in my head today -- so it's hard 18:35:34
22 to give you a specific answer to that accurately. 18:35:38

23 Q. Okay. But there's -- as you mentioned, 18:35:43
24 there's a source -- there's a place you can go at 18:35:45
25 Facebook where you can see and learn exactly what 18:35:48

CONFIDENTIAL

1 information that API provides access to? 18:35:51

2 A. My understanding is that the code base of 18:35:55

3 Facebook may help understand which API specifically 18:35:59

4 you're referring to and its behavior over time. 18:36:04

5 Q. And based upon what you know now, can you 18:36:09

6 say whether that API provides access to friends 18:36:12

7 information? 18:36:16

8 A. I -- again, to answer that question 18:36:19

9 specifically, I'd need to go and look at the exact 18:36:22

10 behavior of the Social Context API. There are 18:36:25

11 other APIs whose behavior I can describe. The 18:36:28

12 Social Context API, I -- I don't have the 18:36:31

13 information as to, like, exactly which API you're 18:36:34

14 referring to, exactly how it behaved, and exactly 18:36:37

15 who it was available to and when. 18:36:43

16 So I just don't want to give you incorrect 18:36:46

17 information. 18:36:49

18 Q. Well, that's fair, and I appreciate that 18:36:50

19 answer. 18:36:51

20 Do you know of or can you provide any 18:36:52

21 other APIs that provided access to friend 18:36:54

22 information? 18:36:59

23 And let me make your answer easier. Other 18:37:00

24 than those that have the word "friends" in the -- 18:37:03

25 A. When you're referring to friends 18:37:07

Page 110

CONFIDENTIAL

1 information here, can you be more specific 18:37:09

2 precisely what information -- what would classify 18:37:12

3 as friends information in your question? 18:37:15

4 Q. Yeah, and I'm trying to use the definition 18:37:17

5 we came up with before. But it's really any 18:37:19

6 information about the friends -- any Facebook data 18:37:22

7 or information about the friends of the person who 18:37:24

8 authorized the app. 18:37:26

9 A. Okay. Cool. 18:37:32

10 Some other APIs that -- that would have 18:37:36

11 been -- that fit that description, there is an API 18:37:38

12 called a "Taggable Friends API" that you've 18:37:46

13 previously mentioned. There was another one called 18:37:51

14 the "Invisible Friends API." 18:37:54

15 And then the -- several of the user 18:38:01

16 permissions, user_posts, user_photos, user_videos, 18:38:08

17 as per my previous testimony, would have allowed 18:38:20

18 the app to access the user's photos, but comments 18:38:23

19 and likes on those photos by my friends may also 18:38:28

20 have been returned by that API. 18:38:33

21 Q. And you said "photos," but that would be 18:38:36

22 the same for videos as well? 18:38:38

23 A. The user photos and user videos APIs 18:38:41

24 behaved the same way, to my knowledge -- or in a 18:38:47

25 similar way, to my knowledge. 18:38:50

Page 111

CONFIDENTIAL

1 Q. And do you know, with regard to those user 18:38:52
2 permissions, what time period they were active on 18:38:56
3 the Platform? 18:38:58

4 A. The permissions, as I understand it, were 18:39:00
5 added in April 2010, in terms of the permissions 18:39:03
6 themselves. 18:39:08

7 The behavior of the APIs that were gated 18:39:11
8 by those permissions changed over time. So it's 18:39:16
9 hard to say exactly when the behavior changed, but 18:39:20
10 the permissions that those -- those specific 18:39:23
11 permissions were made available, as I understand 18:39:27
12 it, in April 2010. 18:39:29

13 MR. BLUME: I'm sorry to -- when you're at 18:39:32
14 a breaking point, if we could break. 18:39:34

15 MR. LOESER: Yeah. One more question. 18:39:36

16 Q. Those permissions, the user permissions 18:39:38
17 you just described, are they still available on the 18:39:41
18 Platform today? 18:39:44

19 A. My understanding is that some of those 18:39:47
20 permissions are still available today, but I would 18:39:49
21 want to review the public API documentation to be 18:39:54
22 sure. 18:39:58

23 MR. LOESER: And I apologize, Mr. Blume, I 18:39:59
24 just have two more questions that relate to this. 18:40:01
25 If that's okay, I'll ask -- 18:40:04

Page 112

CONFIDENTIAL

1 MR. BLUME: Okay. 18:40:06

2 BY MR. LOESER: 18:40:06

3 Q. Now, we've gone through a number of 18:40:07

4 different APIs, and I have attempted to elicit 18:40:08

5 information about all the APIs that provide access 18:40:11

6 to friend information as we've defined that. 18:40:13

7 Is there a tool or is there a list or a 18:40:16

8 database or something at Facebook that identifies 18:40:19

9 every single API that provides friend information 18:40:22

10 in any way? 18:40:28

11 A. I'm not aware of a tool that identifies 18:40:33

12 the subset of the Facebook Developer Platform APIs 18:40:38

13 that would have returned information about a user's 18:40:42

14 friends. 18:40:47

15 Q. And do you know if, at any point, Facebook 18:40:49

16 has undertaken the effort to identify every single 18:40:51

17 API that emitted friend information? 18:40:55

18 A. I'm aware of an effort in around 2018 that 18:40:59

19 was undertaken to assess the Facebook Platform and 18:41:06

20 the Facebook APIs and determine what information 18:41:12

21 was made available by those APIs. 18:41:17

22 Q. And do you know if that effort looked at 18:41:22

23 all of the different APIs that I just ran through 18:41:25

24 with you: Taggable Friends, Invisible Friends, 18:41:29

25 User Permissions, Groups, Events, Posts, and the 18:41:33

Page 113

CONFIDENTIAL

1 like? 18:41:36

2 A. My understanding is that effort would have 18:41:38

3 looked through all of the APIs that were commonly 18:41:40

4 available on the Facebook developer endpoint 18:41:42

5 platform at the time. 18:41:45

6 Q. My last question, then we can take a 18:41:47

7 break: 18:41:49

8 Facebook can determine definitively with 18:41:50

9 respect to every API whether that API emitted any 18:41:53

10 friend information. Right? 18:41:57

11 A. My understanding is that for a given API 18:42:02

12 method, it is determinable what information would 18:42:06

13 have been emitted by that API. 18:42:10

14 MR. LOESER: Okay. We can take a break 18:42:14

15 now. Thank you for continuing on until we finished 18:42:16

16 that topic. 18:42:19

17 THE VIDEO OPERATOR: Okay. Then we're off 18:42:21

18 the record at 6:42 P.M. 18:42:23

19 (Recess from 6:42 P.M. to 7:00 P.M.) 18:42:25

20 THE VIDEO OPERATOR: We're back on the 19:00:38

21 record at 7:00 P.M. 19:00:39

22 MR. LOESER: Mr. Cross, we're going to put 19:00:44

23 up another exhibit for you. It's previously been 19:00:45

24 marked Exhibit 98. 19:00:48

25 And while it's being loaded, this appears 19:00:55

Page 114

CONFIDENTIAL

1 to be a post from you on the internal group app 19:00:58

2 review and policy enforcement feedback and 19:01:03

3 questions on June 11, 2015. Is that right? 19:01:05

4 A. I'm not seeing anything on the screen just 19:01:14

5 yet. Or in the Veritext Egnite thing. 19:01:16

6 (Previously marked Exhibit 98 was 19:01:21

7 presented to the witness.) 19:01:26

8 MR. BLUME: Do you have an exhibit number? 19:01:28

9 MR. LOESER: Yeah, it's Exhibit Number 98. 19:01:30

10 THE WITNESS: I'm just going to quickly 19:01:39

11 turn on the lights in my room. It's getting dark 19:01:41

12 here. 19:01:45

13 Okay. I'm seeing something now. Thank 19:01:50

14 you. 19:01:52

15 BY MR. LOESER: 19:01:54

16 Q. And do you see the exhibit stamp 98? 19:01:54

17 A. I do. 19:01:58

18 Q. Okay. And then if you look at the top of 19:01:59

19 the next page, it says "App Review and Policy 19:02:01

20 Enforcement Feedback and Questions." 19:02:04

21 A. I see that, yes. 19:02:09

22 Q. And what -- is this a -- like, what is 19:02:11

23 this? 19:02:13

24 Where was this posted? 19:02:15

25 A. I can't confirm where this was posted from 19:02:20

Page 115

CONFIDENTIAL

1 what I'm seeing here. It's -- yeah. I -- from 19:02:23

2 what I'm seeing on the screen, I can't 100 percent 19:02:27

3 confirm where this -- where this was posted. 19:02:30

4 Q. Okay. And in June of 2015, what was your 19:02:34

5 position at Facebook? 19:02:36

6 A. I was a product manager on the Facebook 19:02:39

7 Developer Platform. 19:02:42

8 Q. Okay. And was there a list serve or 19:02:45

9 something that was -- where people provided 19:02:48

10 feedback and questions for app review and policy 19:02:52

11 enforcement? 19:02:55

12 A. There was likely a Facebook group. We 19:02:57

13 used Facebook internally to discuss that. That's 19:02:59

14 what this may be. I just can't 100 percent confirm 19:03:03

15 it from what I'm looking at here. 19:03:06

16 Q. Okay. And if you look at just your post 19:03:09

17 starting at the top, it refers to something called 19:03:13

18 "CaptainQuizz." 19:03:16

19 But before I ask you questions about that, 19:03:20

20 there's a link below that. 19:03:23

21 Can you tell what that link is? 19:03:25

22 A. That looks to me like a -- what, a URL to 19:03:31

23 an image of -- first of all, that's what it looks 19:03:39

24 like to me. I can't confirm if that URL is the URL 19:03:42

25 for the image directly below it. It's possible, 19:03:47

Page 116

CONFIDENTIAL

1 but I can't confirm that. 19:03:52

2 Q. Okay. Well, let's look at your -- your 19:03:54

3 post. It says: 19:03:57

4 "This app, CaptainQuizz" -- and I'm 19:03:59

5 skipping the numbers -- "is blowing up: 0 to 19:04:02

6 17 million MAU in 17 days." 19:04:06

7 Do you see that? 19:04:09

8 A. I see that on the screen, yeah. 19:04:09

9 Q. And below that, you write: 19:04:11

10 "They're accessing people's timeline 19:04:13

11 posts and photos - and looking at the people 19:04:15

12 (non-app friends) who like and comment on 19:04:18

13 them." 19:04:21

14 And so when you use the expression 19:04:22

15 "non-app friends" here, what are you referring to? 19:04:26

16 A. I'm referring to people who are friends of 19:04:30

17 the user who's authorized the application who have 19:04:36

18 not yet authorized the application themselves. 19:04:41

19 Q. Okay. So in -- on June 11, 2015, this app 19:04:45

20 called "CaptainQuizz" was obtaining friend 19:04:52

21 information. Correct? 19:04:55

22 A. My understanding from reading this is I 19:05:00

23 was -- I thought it was accessing information about 19:05:02

24 people who had liked and commented on the timeline 19:05:13

25 posts and photos of people who had used the 19:05:17

Page 117

CONFIDENTIAL

1 application. 19:05:20

2 Q. Okay. And then you write: 19:05:21

3 "To me, while technically possible, seems 19:05:23

4 like it violates spirit of the V2 changes and 19:05:26

5 the intended use of user_posts and 19:05:30

6 user_photos -- which is about deriving 19:05:33

7 user-value from the content, not the people 19:05:36

8 who like/comment on the content." 19:05:38

9 Did I read that correctly? 19:05:41

10 A. You read that correctly. 19:05:43

11 Q. And "V2," is that a reference to Graph API 19:05:45

12 Version 2? 19:05:47

13 A. That would be a reference to Graph API 19:05:48

14 Version 2. 19:05:50

15 Q. And tell me what you mean when you say 19:05:52

16 that it "seems like it violates spirit of the V2 19:05:54

17 changes and the intended use of user_posts and 19:05:58

18 user_photos." 19:06:01

19 A. So the intended use, as I understand it, 19:06:06

20 and user_posts and user_photos was to grant apps 19:06:08

21 the ability -- well, for users to be able to 19:06:12

22 authorize an application to access their user posts 19:06:15

23 and photos for some value that the application was 19:06:19

24 providing to users. 19:06:24

25 Q. Okay. And you thought that because user 19:06:29

Page 118

CONFIDENTIAL

1 posts and user photos were emitting friend data and 19:06:31
2 Facebook had announced it had deprecated friend 19:06:34
3 data. Right? 19:06:38
4 A. So Facebook had announced it had -- it was 19:06:41
5 deprecating the friend permissions. That's what 19:06:44
6 Facebook announced as part of the API V1 changes. 19:06:49
7 So that's important to clarify. 19:06:55
8 Q. Okay. And -- but when you say that it 19:06:59
9 "violates the spirit of V2 changes," is what you're 19:07:04
10 saying here that it -- this app continues to obtain 19:07:07
11 friend information, and the spirit of the V2 19:07:11
12 changes was to stop that from happening? 19:07:14
13 A. Several of the changes in API V2, or the 19:07:20
14 suite of things that were launched along with API 19:07:26
15 V2, were about limiting the ability of applications 19:07:29
16 to access a user's friends' content and 19:07:36
17 information. 19:07:45
18 In this case, what's still available to 19:07:46
19 this application is the likes and comments made by 19:07:50
20 a user's friends on a user's timeline posts. 19:07:54
21 Q. Okay. And how does that violate the 19:08:08
22 spirit of the V2 changes? 19:08:10
23 A. The spirit of the V2 changes, as I 19:08:16
24 recall -- trying to remember what I wrote in this 19:08:19
25 post nearly seven or eight years ago -- is the apps 19:08:23

Page 119

CONFIDENTIAL

1 would have less access to information about a 19:08:30

2 user's friends who were not using the application. 19:08:39

3 That was indeed behind any of the changes 19:08:45

4 in API V2; but in this case, the application was 19:08:51

5 still accessing some information about the user's 19:08:58

6 friends who had commented or liked on the original 19:09:02

7 post -- on the app-using user's posts. 19:09:05

8 Q. And so you expressed those concerns. 19:09:22

9 And do you recall whether this app 19:09:27

10 continued to have access to the user posts and user 19:09:30

11 photos after you expressed these concerns? 19:09:35

12 A. From reading the thread that continues 19:09:40

13 below -- below this, it looks like the conclusion 19:09:45

14 was reached that this activity was not against 19:09:48

15 policy as defined at the time, and this access -- 19:09:54

16 this use case should continue. 19:10:00

17 I don't recall -- I do not know what 19:10:05

18 happened to the app CaptainQuizz over time. 19:10:08

19 Q. Now, Mr. Cross, there were thousands of 19:10:24

20 apps that had access to friend information. Is 19:10:26

21 that right? 19:10:28

22 A. Over what time period are you referring 19:10:35

23 to? 19:10:37

24 Q. Oh, that's a good question. 19:10:38

25 So prior to the introduction of Graph API 19:10:40

Page 120

CONFIDENTIAL

1 Version 2, there were thousands of apps that had 19:10:43
2 access to friend permissions. Right? 19:10:46

3 A. Prior to the introduction of API 19:10:49
4 Version 2, any application on the Facebook 19:10:51
5 Developer Platform could request the friend 19:10:53
6 permissions from users. 19:10:56

7 Q. And Facebook evaluated the number of apps 19:10:59
8 that had access to friend permissions as part of 19:11:04
9 its preparation for the introduction of Graph API 19:11:08
10 Version 2. Right? 19:11:12

11 A. In preparation for the changes launched on 19:11:15
12 April 30, 2015, a number of initiatives were 19:11:18
13 undertook to understand the potential impact of 19:11:24
14 these changes on the developer ecosystem. 19:11:26

15 Q. And included in those initiatives was 19:11:31
16 identifying the number of users who downloaded apps 19:11:34
17 with access to friend information. Right? 19:11:37

18 A. Can you help me understand what you mean 19:11:40
19 by "downloaded"? 19:11:41

20 Q. I'm sorry. Installed the apps. 19:11:43

21 A. My understanding is that one of the things 19:11:50
22 that was looked at is the number of users who had 19:11:52
23 granted one or more friend permissions to one or 19:11:56
24 more applications. 19:11:59

25 Q. And as part of those initiatives as well, 19:12:01

Page 121

CONFIDENTIAL

1 Facebook identified the number of API calls on the 19:12:05
2 friend-sharing APIs. Right? 19:12:09

3 A. I would need to see, like, specific 19:12:16
4 documentation there. 19:12:19

5 Like, recall there was no such thing as 19:12:21
6 the friend APIs. There are friend permissions, and 19:12:25
7 there are APIs, and those APIs can be called by the 19:12:29
8 app-using user or on behalf of that app-using 19:12:32
9 user's friends. 19:12:38

10 So, again, I want to make sure I'm giving 19:12:39
11 you the right answer, given the specifics. 19:12:41

12 Q. I appreciate that. So let's speak in 19:12:43
13 terms of friend permissions, then. 19:12:45

14 One of the things that Facebook can 19:12:47
15 identify is the number of API calls on any of the 19:12:49
16 permissions that are available on the Platform. 19:12:53
17 Right? 19:12:56

18 A. So, again, the -- 19:13:00

19 Q. Or did I mix up the terminology -- the 19:13:01
20 calls are referred to the APIs themselves, not the 19:13:03
21 permissions. Is that right? 19:13:06

22 A. When you -- when you see a reference to 19:13:07
23 "API calls," that's referring to APIs. 19:13:09

24 The permissions determine what information 19:13:12
25 is available via those APIs. 19:13:15

Page 122

CONFIDENTIAL

1 So, yeah, those concepts are separate, 19:13:18
2 yeah. 19:13:21

3 Q. So Facebook can identify and did identify 19:13:21
4 the number of API calls on the APIs that provided 19:13:24
5 access to friend information. 19:13:30

6 A. The -- the documents I've read show that 19:13:41
7 there was an effort done to determine how API calls 19:13:45
8 that were made by applications -- and some of the 19:13:50
9 API calls -- some of the APIs would -- would 19:13:54
10 specifically map to friend data; other API calls 19:13:59
11 would not be specific to friend data. 19:14:03

12 Q. And I appreciate that. And I'm trying to 19:14:08
13 make sure I understand what Facebook knew about the 19:14:10
14 use of APIs that provided access to friend 19:14:13
15 information. 19:14:18

16 And my understanding is that Facebook 19:14:18
17 identified that thousands of apps installed by 19:14:20
18 millions of users made millions of calls on 19:14:24
19 friend-sharing APIs. Is that a fair statement? 19:14:27

20 A. No. The -- the friend-sharing API part of 19:14:31
21 that doesn't map with my understanding of how the 19:14:36
22 platform worked. 19:14:39

23 If you could show me a document that 19:14:40
24 states that, that might be helpful for me to 19:14:42
25 analyze. 19:14:45

CONFIDENTIAL

1 Q. Yeah. And we'll get into a document 19:14:47
2 that -- 'cause as you say, there were various 19:14:49
3 initiatives that studied the extent to which friend 19:14:52
4 information was made available by apps via APIs 19:14:56
5 that provided access to that information. Okay. 19:15:01
6 Right? 19:15:05

7 A. There were a number of studies done to 19:15:05
8 analyze the use of the Platform by developers and 19:15:08
9 how they were using the Platform and which 19:15:12
10 permissions they were requesting and which APIs 19:15:15
11 they were -- they were calling. 19:15:17

12 Q. And deprecating -- and I hope I'm using 19:15:20
13 the terminology right -- but deprecating friend 19:15:24
14 permissions, that was a thing. Right? 19:15:27

15 A. In API Version 2, the friend permissions 19:15:31
16 were not readily grantable by a user using an 19:15:35
17 application that was using API Version 2. 19:15:40

18 Q. And that was a big change at Facebook 19:15:44
19 because thousands of apps had access to the APIs 19:15:46
20 that allowed friend-sharing. Right? 19:15:52

21 A. The way that the Facebook Developer 19:16:01
22 Platform worked before API Version 2 allowed any 19:16:03
23 application to request friend permissions, and a 19:16:08
24 number of applications did so. 19:16:14

25 And so the removal of those permissions 19:16:17

CONFIDENTIAL

1 from the public API surface area in API Version 2, 19:16:21
2 yes, was considered a significant change to the 19:16:27
3 Facebook Developer Platform. 19:16:30

4 MR. LOESER: If we could go to Tab 8. 19:16:35
5 (Deposition Exhibit 334 was marked for 19:17:10
6 identification.) 19:17:12

7 MR. LOESER: This is Exhibit 334. The 19:17:15
8 Bates number on this is 01685319.ppt. 19:17:20

9 Q. Is that right? 19:17:26

10 And, Mr. Cross, do you see what's on your 19:17:28
11 screen? 19:17:30

12 A. I do. 19:17:30

13 Q. And this is -- you can take a minute to 19:17:32
14 skim through it. I just have a few questions about 19:17:36
15 this slide deck. And the first page says: "Login 19:17:39
16 V4 (+PS12n) - 1/24/2014 update." 19:17:42

17 Can you describe what this refers to just 19:17:49
18 by looking at the title of it? 19:17:55

19 A. "Login V4" refers to the update to the 19:17:57
20 Facebook Platform Login dialogue that were launched 19:18:00
21 in -- as part of the changes announced on 19:18:06
22 April 30, 2014. So that's what "Login V4" refers 19:18:10
23 to. 19:18:16

24 And "PS12n" refers to a term called 19:18:16
25 "platform simplification," which was one of the 19:18:20

Page 125

CONFIDENTIAL

1 terms used as part of the work that led up to the 19:18:23
2 changes that were announced in -- on April 30, 19:18:30
3 2014. 19:18:34

4 Q. Okay. And if you -- if you turn to the 19:18:37
5 next page of that slide deck, there's an "Overview" 19:18:41
6 slide which describes the content of this 19:18:47
7 presentation. 19:18:51

8 And it states, Number 1: "Goals: User 19:18:53
9 Trust, Developer Trust, protect the graph." 19:18:56

10 Number 2: "Many data protection changes." 19:19:00

11 And Number 3: "Limited 'simplification' 19:19:02
12 changes." 19:19:04

13 Did I read that correctly? 19:19:05

14 A. You read that correctly. 19:19:06

15 Q. And we've discussed user trust. 19:19:07

16 What does "developer trust" refer to? 19:19:10

17 A. "Developer trust" refers to how Facebook 19:19:14
18 thought about its relationship with its platform 19:19:17
19 developers; whether or not those developers would 19:19:21
20 be keen to continue developing integrations with 19:19:27
21 the Facebook Developer Platform. 19:19:31

22 Q. And why did Facebook want developers to do 19:19:33
23 that? 19:19:36

24 A. If you're building a developer platform, 19:19:40
25 you typically want developers to build for your 19:19:43

Page 126

CONFIDENTIAL

1 developer platform. 19:19:46

2 Q. And what does Facebook gain from that? 19:19:48

3 A. Facebook gained a number of things from 19:19:55

4 its Developer Platform, various different types, 19:19:56

5 depending on the functionality of the app provided. 19:20:03

6 Q. Okay. Are there a couple of main 19:20:08

7 priorities? 19:20:11

8 A. One example would be allowing apps that 19:20:15

9 would -- users using applications where users would 19:20:22

10 share content or activity in their applications 19:20:26

11 back to Facebook so that it could be seen on 19:20:31

12 Facebook by that user's friends on that Newsfeed. 19:20:33

13 Q. And did Facebook, then, have an appetite 19:20:38

14 for more information because it utilized that 19:20:42

15 information in its Advertising Platform? 19:20:44

16 A. I haven't prepared to talk about how the 19:20:51

17 advertising systems work. That's -- that's not my 19:20:54

18 area of expertise in general, and it's not 19:20:57

19 something I prepared in this -- to testify on. I 19:21:01

20 understand there are other people doing that. 19:21:04

21 My understanding of the reason why we were 19:21:09

22 keen for apps to share contact back to Facebook is 19:21:13

23 that that would result in content on Facebook that 19:21:18

24 could be viewed in Newsfeed that people could like 19:21:21

25 and comment and reshare. 19:21:24

Page 127

CONFIDENTIAL

1 Q. And -- and you're not knowledgeable about 19:21:26
2 whether it was also -- that information was used 19:21:29
3 to -- for the benefit of the targeted advertising 19:21:32
4 systems? 19:21:36

5 A. I am not an expert in how Facebook's 19:21:38
6 targeted advertising systems work or what 19:21:41
7 information is used to inform how ad-targeting 19:21:43
8 works. 19:21:48

9 Q. And the last thing on Number 1 is "protect 19:21:49
10 the graph." 19:21:53

11 Can you explain what that means? 19:21:54

12 A. My understanding of "protect the graph" is 19:21:59
13 about limiting the amount of information third 19:22:06
14 parties have about users who authorize their 19:22:10
15 application and their relationships to each other. 19:22:19

16 Q. Okay. If you could turn to page 6 of this 19:22:24
17 slide deck -- and it doesn't have page numbers on 19:22:28
18 it, so we'll flip to the sixth page and tell you, 19:22:31
19 "This is the sixth page." 19:22:34

20 Do you see the slide on the screen now? 19:22:36

21 A. I do. 19:22:40

22 Q. And do you see the title of that slide? 19:22:41

23 A. I do. 19:22:44

24 Q. And what does it say? 19:22:46

25 A. It says: "User of high-value perms." 19:22:48

Page 128

CONFIDENTIAL

1 Q. And what are "high-value perms"? 19:22:53

2 A. I -- I don't know what high-value perms 19:22:57

3 are in a general context. The slide includes a 19:23:04

4 number of permissions that were available on the 19:23:07

5 Facebook Developer Platform, and this slide is by 19:23:10

6 inference calling those "high-value perms." 19:23:15

7 But I can't say today exactly what 19:23:18

8 "high-value perms" means in general. 19:23:20

9 Q. And what is Facebook's definition of 19:23:24

10 "high-value perms"? 19:23:27

11 And I assume that's the permissions. So 19:23:30

12 high-value permissions? 19:23:32

13 A. I'm not aware of Facebook having a 19:23:34

14 definition of "high-value perms" that's general and 19:23:35

15 commonly used. This seems to be a set of 19:23:38

16 terminology created by the author of this deck. 19:23:43

17 Q. Okay. And, based upon this slide, the 19:23:48

18 following permissions were identified as high-value 19:23:54

19 permissions, and those are: "Friends; 19:23:57

20 read_mailbox; read_requests; read_friendlists; 19:24:01

21 manage_notifications; manage_friendlists; and 19:24:06

22 "create_event." 19:24:12

23 Is that right? 19:24:13

24 A. I see "manage_notifications," but I don't 19:24:14

25 see "manage_events" listed here, either on your or 19:24:17

Page 129

CONFIDENTIAL

1 on mine. 19:24:24

2 Q. Yeah, we're trying to shrink the -- well, 19:24:25

3 as we're working this out, I'll represent to you 19:24:30

4 that there are a couple more rows that you can't 19:24:33

5 see, and they include "manage_friendlists; 19:24:36

6 create_events," and there's even a couple that I 19:24:39

7 can't see. 19:24:42

8 But nonetheless, what I read through, 19:24:43

9 those are -- the first column of this slide 19:24:45

10 identifies what the -- what are described as 19:24:48

11 "high-value permissions." Right? 19:24:52

12 A. Well, I can see on the slide the number of 19:24:58

13 permissions that the author of this deck has 19:25:01

14 somehow categorized as "high-value perms." 19:25:04

15 But, like I said, this isn't -- this 19:25:07

16 doesn't resonate to me as a -- as a general 19:25:09

17 classification that was widely used. 19:25:13

18 Q. And then if you go to the second column of 19:25:16

19 this spreadsheet, it says: "Total number of apps 19:25:19

20 requesting these permissions a day." Is that 19:25:23

21 right? 19:25:26

22 A. That's what I see in the column header, 19:25:28

23 yeah. 19:25:30

24 Q. And so earlier, I was asking you questions 19:25:32

25 to try and get a scope -- understand the scope of 19:25:34

Page 130

CONFIDENTIAL

1 friend-sharing use in particular. 19:25:38

2 And according to this, as of the time of 19:25:42

3 this deck, which was -- looks like 1/24/2014, there 19:25:46

4 were 13,350 apps requesting friends permissions per 19:25:51

5 day. Right? 19:25:57

6 A. My understanding from this is what it's 19:26:01

7 saying is that there were around 13,000 apps 19:26:03

8 requesting one or more friend permissions on any 19:26:07

9 given day -- on -- on a day. 19:26:12

10 It's not clear from what I'm seeing here 19:26:16

11 whether or not that was an average or what 19:26:19

12 particular day or from what time period that data 19:26:21

13 was collected, to be clear. 19:26:23

14 Q. And earlier you talked about various 19:26:27

15 initiatives that Facebook undertook before 19:26:29

16 implementing the new version of the graph. 19:26:32

17 And does this appear to be one of the 19:26:35

18 evaluations that Facebook did of the extent of the 19:26:37

19 use of various permissions that were going to be 19:26:40

20 deprecated? 19:26:44

21 A. Given my understanding of the -- of the 19:26:48

22 date of this slide deck, given it was before the 19:26:50

23 changes were announced and the data contained 19:26:54

24 within, it seems reasonable that this is an output 19:26:57

25 of some of the analysis that was done to understand 19:27:03

Page 131

CONFIDENTIAL

1 the scale of the apps using to-be-deprecated 19:27:07

2 permissions, including the friend permissions. 19:27:14

3 Q. And let's go to the next slide. 19:27:18

4 This slide is called "Key apps," and it 19:27:21

5 has a number of different categories of key apps in 19:27:24

6 the first column, starting with "Mark's friends," 19:27:29

7 and it shows there's 31 apps. 19:27:33

8 What are "Mark's friends"? 19:27:35

9 What apps are those? 19:27:37

10 A. I have -- I do not know which apps are 19:27:40

11 being referred to here, like, which apps are the 19:27:44

12 number -- which represent the 31, and I also don't 19:27:47

13 know how that number was derived. 19:27:50

14 So I -- it's hard for me to -- I am unable 19:27:56

15 to -- to answer the question what -- what were 19:27:59

16 those apps or how were they categorized as "Mark's 19:28:04

17 friends." 19:28:08

18 Q. And where would Facebook go to identify 19:28:08

19 the apps, the key apps, characterized as "Mark's 19:28:11

20 friends"? 19:28:14

21 A. I don't know how this list was derived or 19:28:17

22 how it was derived or who derived it. 19:28:22

23 Q. And so if Facebook were asked to provide 19:28:27

24 an answer to what apps are "Mark's friends," how 19:28:29

25 would Facebook answer that question? 19:28:32

Page 132

CONFIDENTIAL

1 A. My first step would be to try and identify 19:28:40
2 the author of the deck and to see if they are 19:28:43
3 contactable and to attempt to determine if they 19:28:49
4 recall how this determination was made. 19:28:52

5 Q. Is asking Mark perhaps one of the ways to 19:28:58
6 find the answer to that as well? 19:29:00

7 A. I doubt Mark would know how this slide 19:29:02
8 deck was prepared or what went into determining 19:29:05
9 that number on the screen. 19:29:08

10 Q. And without having any commentary on the 19:29:11
11 fact that Sheryl has more friends than Mark, where 19:29:14
12 would one go to find out what key apps are Sheryl's 19:29:17
13 friends? 19:29:21

14 A. Well, so first of all, you said there that 19:29:22
15 Sheryl has more friends than Mark. 19:29:28

16 The numbers here refer to apps, not 19:29:31
17 friends, to be clear. 19:29:34

18 And the same answer applies here, which is 19:29:35
19 I -- I do not know how this slide deck was created 19:29:40
20 or who created it or how they came to this 19:29:45
21 determination. There's no evidence here of how 19:29:49
22 that was determined. 19:29:54

23 Q. So I can tell you from the metadata that 19:29:55
24 this is from Eddie O'Neil's custodial file. 19:29:57

25 So does that suggest to you that you would 19:30:02

CONFIDENTIAL

1 ask -- if he's the author of this deck, you could 19:30:04

2 ask him how he came up with these numbers? 19:30:07

3 A. If he is indeed the author of the deck, 19:30:09

4 it's -- he could be asked. Whether or not he would 19:30:15

5 recall how these numbers were derived is a question 19:30:17

6 for him. 19:30:21

7 Q. Okay. And what is "Generating TPV"? 19:30:23

8 What is "TPV"? 19:30:27

9 A. TPV in this context refers to total 19:30:29

10 payment volume, which is the payments happening in 19:30:31

11 the games, as I understand it, that are being 19:30:39

12 referred to here. 19:30:44

13 Q. Okay. So this appears that when 19:30:47

14 evaluating the deprecation of certain permissions, 19:30:50

15 Mr. O'Neil identified key apps that were generating 19:30:55

16 TPV. Correct? 19:30:59

17 A. Sorry. Can you ask that again? I want to 19:31:02

18 make sure I -- 19:31:04

19 Q. Yeah, I'm just trying to understand -- 19:31:05

20 sorry, we're talking at the same time, which is my 19:31:07

21 fault. 19:31:10

22 But I'm trying to understand the -- this 19:31:10

23 appears to be an analysis of what APIs were going 19:31:12

24 to be deprecated, but also what apps would be 19:31:16

25 affected by those deprecations. Right? 19:31:20

Page 134

CONFIDENTIAL

1 And so one of the categories here that 19:31:23
2 appears was -- that was being evaluated was whether 19:31:24
3 the app that could be impacted by deprecation was 19:31:27
4 generating TPV. 19:31:32

5 Is that a fair read? 19:31:34

6 A. My understanding is this deck has referred 19:31:36
7 to a range of potentially to-be-deprecated APIs and 19:31:38
8 permissions -- sorry -- specifically, the previous 19:31:46
9 slide refers to permissions that were at this point 19:31:49
10 proposed to be deprecated, publicly -- not publicly 19:31:53
11 available to developers anymore, and the "Key apps" 19:31:59
12 slide is an attempt to quantify the number of apps 19:32:02
13 that the author estimated to be impacted by those 19:32:05
14 deprecations. 19:32:09

15 Q. And what -- is it "Neko"? Is that "Neko 19:32:12
16 spenders"? 19:32:17

17 A. Neko or Neko, that refers to a product 19:32:18
18 that is -- that came to be known as "Mobile App 19:32:24
19 Install Ads." 19:32:27

20 Q. Okay. And what are "Neko spenders"? 19:32:31

21 A. So my understanding is that would refer to 19:32:36
22 apps that were -- in some period of time had spent 19:32:38
23 some money on mobile app install ads. 19:32:42

24 Q. And when you say "spend some money," what 19:32:47
25 does that mean? 19:32:50

| | | |
|---|---|----------|
| 1 | A. "Mobile App Install Ads" is an ads | 19:32:52 |
| 2 | product. And so if a developer wanted to have ads | 19:32:57 |
| 3 | for their app, then they would buy those ads just | 19:33:02 |
| 4 | like any other ad on Facebook. | 19:33:06 |

5 | Q. And the next down the list is "Noisy." 19:33:11

| | | |
|---|---|----------|
| 6 | Do you know what "Noisy" refers to with | 19:33:16 |
| 7 | regard to key apps? | 19:33:20 |

8 | A. I don't know what "Noisy" refers to. 19:33:22

| | | |
|----|--------------------------------------|----------|
| 9 | Q. And what about "T0/" -- or "T0/T1 | 19:33:24 |
| 10 | partners?" | 19:33:30 |

```
11 | Do you know what that refers to? 19:33:31
```

| | | |
|----|---|----------|
| 12 | A. That's referring to some kind of partner | 19:33:33 |
| 13 | categorization that would have been in use at the | 19:33:35 |
| 14 | time, but there are a number of different ways that | 19:33:37 |
| 15 | the partnership team would have classified and | 19:33:40 |
| 16 | categorized apps over time. | 19:33:46 |

| | | |
|----|--|----------|
| 17 | Q. Do you know what a "T0 partner" is? | 19:33:48 |
|----|--|----------|

| | | |
|----|--|----------|
| 18 | A. It would have been some categorization | 19:33:51 |
| 19 | that the platform partnerships team was using, but | 19:33:53 |
| 20 | I don't know exactly what T0 -- the criteria to be | 19:33:57 |
| 21 | classified as a T0 app was. | 19:34:05 |

| | | |
|----|---|----------|
| 22 | Q. And then T1, it -- my understanding is it | 19:34:07 |
| 23 | has to do with the importance of the partner to | 19:34:11 |
| 24 | Facebook. | 19:34:14 |

| | | |
|----|------------------------------|----------|
| 25 | Is that consistent with your | 19:34:14 |
|----|------------------------------|----------|

CONFIDENTIAL

1 understanding? 19:34:16

2 A. My understanding is there were various 19:34:17

3 tiers of partners, Tier 0 being the top, Tier 1 19:34:20

4 being one below. 19:34:25

5 But again, I -- it's unclear. I am unable 19:34:27

6 to say what was -- why an app would be categorized 19:34:31

7 in Tier 0 versus Tier 1. 19:34:35

8 Q. And does Facebook classify its partners 19:34:38

9 differently based upon how much revenue Facebook 19:34:43

10 receives from the partner? 19:34:47

11 A. I don't know how the -- the tiering, as 19:34:53

12 represented here, was -- was determined. My 19:34:56

13 understanding is there would have been a range of 19:34:59

14 factors that would have gone into that tiering 19:35:01

15 determination. 19:35:06

16 Q. Now, my understanding of the -- of the 19:35:14

17 purpose of allowing an app to have access to friend 19:35:18

18 information was to use that information in the -- 19:35:22

19 solely in the context of the person who authorized 19:35:28

20 the app to obtain the information. 19:35:32

21 Is that your understanding? 19:35:34

22 A. My understanding is that the existence of 19:35:43

23 the ability for apps to access information about a 19:35:50

24 user who used the app and their friends was to 19:35:54

25 build an engaging social experience for that user. 19:35:59

Page 137

CONFIDENTIAL

1 Q. And there were rules at Facebook, 19:36:03
2 developer rules, that limited the use of friend 19:36:06
3 information to the purpose you just described. Is 19:36:09
4 that right? 19:36:12

5 A. There was a range of platform policies 19:36:15
6 that developers -- it was a specific set of 19:36:17
7 platform policies that the -- that developers of 19:36:20
8 the Facebook app -- the developers of apps that 19:36:25
9 used the Facebook Developer Platform would have to 19:36:27
10 agree to. 19:36:32

11 Q. And so if an app gets access to friend 19:36:34
12 data and then uses that information to target the 19:36:39
13 friends of the app users with advertisements, that 19:36:41
14 would be an example of an app using friend 19:36:46
15 information in a way that is -- that violates 19:36:48
16 Facebook's developer policies. Is that right? 19:36:52

17 MR. BLUME: Objection to scope. 19:36:55

18 THE WITNESS: Sorry. I haven't prepared 19:37:00
19 to speak to Facebook's developer policies and 19:37:01
20 precisely what they allowed or prohibited -- and 19:37:04
21 also how Facebook's advertising ecosystem worked. 19:37:09

22 BY MR. LOESER: 19:37:15

23 Q. And based upon your knowledge of the 19:37:19
24 platform, was my statement correct? 19:37:20

25 A. I -- I am not -- I'm not sure I can 19:37:24

CONFIDENTIAL

1 confirm exactly that -- that statement. I am not 19:37:33
2 sure, as I sit here today, exactly what the 19:37:37
3 policies were at any given time in the past. 19:37:39

4 Q. Okay. Let me ask one more related 19:37:46
5 question. Perhaps this is something that you are 19:37:48
6 familiar with. 19:37:50

7 If an app gets access to friend data and 19:37:51
8 then sells that friend information to another third 19:37:53
9 party, would that be an example of the app using 19:37:56
10 friend information in a way that is not solely 19:37:59
11 within the app user's experience? 19:38:03

12 A. If an app developer is making data 19:38:10
13 available to another entity that isn't -- that -- 19:38:16
14 it's hard -- yeah. 19:38:26

15 It's hard for me to, like, give a specific 19:38:27
16 answer to that based on my understanding of how 19:38:29
17 the -- of what was and wasn't okay in terms of the 19:38:33
18 Facebook Developer Platform policies. 19:38:37

19 Q. Okay. But you described for me Facebook's 19:38:39
20 understanding of how friend information was to be 19:38:43
21 used, which was to create the experience between 19:38:45
22 the user of the app and the app. Right? 19:38:48

23 A. So my answer there was referring to my 19:38:52
24 understanding of the -- the primary reason why the 19:38:56
25 Facebook Platform existed, which was to primarily 19:38:59

CONFIDENTIAL

1 allow developers to build engaging social 19:39:04
2 experiences that users could interact with that was 19:39:08
3 valuable to them. 19:39:11

4 Q. And Facebook did not intend in that 19:39:12
5 context for apps to use friend information it 19:39:15
6 obtained from a user outside of the context of the 19:39:18
7 user's experience with that app. Right? 19:39:25

8 A. So there were a number of users -- uses of 19:39:29
9 the Facebook Developer Platform where 19:39:33
10 information -- often publicly available information 19:39:37
11 about a user's activity would be available to an 19:39:40
12 app developer without the user explicitly 19:39:43
13 authorizing the application. 19:39:47

14 Q. And let's confine our answer to 19:39:53
15 information obtained about a friend that was 19:39:55
16 intended for friends only; that wasn't public. 19:39:57

17 And I'm just trying to understand kind of 19:40:01
18 how friend-sharing works. It's not a trick 19:40:04
19 question. I'm just trying to understand if an app 19:40:06
20 obtains friend information but then uses that 19:40:08
21 information for purposes other than the experience 19:40:10
22 of the app user and the app, is that something that 19:40:12
23 is beyond what Facebook intended when it provided 19:40:16
24 access to the friend information? 19:40:20

25 A. So limited to -- limited to the context of 19:40:27

CONFIDENTIAL

1 a user having explicitly authorized an application 19:40:30
2 and then that application having access to the -- 19:40:36
3 the data made available via the friend permissions, 19:40:39
4 my understanding is that the -- that that 19:40:43
5 information was to be used within the context of 19:40:46
6 the application that the user was using. 19:40:48

7 Q. Did Facebook have any technology making it 19:40:51
8 impossible for apps to use friend data other than 19:40:54
9 in connection with the app user? 19:40:58

10 A. One piece of technology Facebook has, or 19:41:06
11 had, is the privacy settings available governing 19:41:11
12 visibility of content on Facebook. 19:41:18

13 As a result, it's possible that, for 19:41:22
14 example, if we were friends and you posted a post, 19:41:26
15 you could make that post not visible to me, even 19:41:31
16 though we were friends using on-Facebook privacy 19:41:36
17 settings. 19:41:40

18 If you had done that, then that piece of 19:41:41
19 content wouldn't be available via the API if it was 19:41:44
20 being called on my behalf. 19:41:50

21 Q. Okay. And if you have shared information 19:41:52
22 with your friend based upon your privacy setting 19:41:54
23 that allowed friends to have that information, was 19:41:59
24 there technology that prevented an app from -- 19:42:01
25 could Facebook have utilized technology that would 19:42:07

Page 141

CONFIDENTIAL

1 prevent that app from getting the friend 19:42:10

2 information since the app is not the friend of the 19:42:13

3 person who posted it? 19:42:15

4 A. So the -- again, which time frame are you 19:42:17

5 referring to here? 19:42:20

6 Q. At any point since 2007. 19:42:22

7 A. Okay. So once a -- once an app makes an 19:42:25

8 API call on behalf of a user and the Facebook API 19:42:32

9 returns that information to the application, then 19:42:38

10 the application or the developer, whether or not 19:42:44

11 that's their servers or the code, technically has 19:42:48

12 access to that information. 19:42:51

13 And once they have that information, 19:42:54

14 the -- there's very little -- there's no technical 19:42:57

15 way for Facebook to prevent it being used outside 19:43:01

16 the use of the application itself. 19:43:06

17 Q. Does Facebook perform financial analysis 19:43:17

18 of the different products it offers? 19:43:20

19 A. That's a very -- 19:43:25

20 Sorry, Rob, it looks like you were going 19:43:27

21 to say something. 19:43:30

22 MR. BLUME: I was just going to object to 19:43:31

23 the form. 19:43:33

24 THE WITNESS: Facebook as a company does 19:43:40

25 look at its various products and how they are 19:43:44

Page 142

CONFIDENTIAL

1 performing. 19:43:47

2 BY MR. LOESER: 19:43:47

3 Q. Okay. And do the different products 19:43:48

4 engage in analysis of revenue and the income, 19:43:50

5 et cetera, of that product to -- to Facebook? 19:43:55

6 A. Different products assess their 19:44:01

7 performance in different ways. Ads products, for 19:44:02

8 example, typically would look at revenue as to 19:44:06

9 whether or not they were performing. 19:44:10

10 Q. And what about partnership-based products? 19:44:14

11 Are there partnership-based products? 19:44:18

12 A. Help me understand what you mean by 19:44:21

13 "partnership-based products." 19:44:23

14 Q. Well, you were in the Partnership team. 19:44:25

15 Did it have a product? 19:44:27

16 A. The Partnership team doesn't have 19:44:29

17 products, no. 19:44:30

18 Q. And does it report revenue or income? 19:44:33

19 A. The Partnership -- the Platform 19:44:39

20 Partnerships team would typically assess the 19:44:41

21 utilization of the Facebook Developer Platform 19:44:49

22 product by Platform developers, and income from 19:44:52

23 Platform developers is one of the things that may 19:45:01

24 have been looked at in terms of understanding the 19:45:05

25 performance of the Platform products. 19:45:08

Page 143

CONFIDENTIAL

1 Q. And what types of income did Facebook 19:45:11
2 receive from Platform developers? 19:45:13

3 A. The types of income that Facebook would 19:45:18
4 receive from Platform developers were, broadly: 19:45:21
5 One, ad spend related to the Platform developer's 19:45:25
6 products; and, two, in the case of games that used 19:45:35
7 in-game currency where that game was rendered 19:45:41
8 inside the Facebook Chrome on the web, Facebook 19:45:44
9 would take a cut of the total payment volume inside 19:45:54
10 of that game or app. 19:45:59

11 Q. And does Facebook consider the user data 19:46:07
12 it collects and infers about users valuable? 19:46:09

13 A. Can you help me understand the -- the 19:46:15
14 context, as in -- yeah. 19:46:17

15 Can you help me understand the context 19:46:20
16 you're asking in? 19:46:21

17 Q. Sure. I'll ask more specifically. 19:46:22

18 Did Facebook do any financial analysis of 19:46:24
19 the value of user data it collects and infers about 19:46:26
20 users? 19:46:30

21 A. In -- let me understand. In any way, 19:46:39
22 across any part of the company? Is that what 19:46:41
23 you're asking? 19:46:43

24 Q. Yes. Yes. We can start big and go small. 19:46:44
25 So, in any way. 19:46:47

Page 144

CONFIDENTIAL

1 MR. BLUME: Objection to scope. 19:46:50

2 THE WITNESS: Yeah. It's hard for me to 19:46:52

3 answer that question at the full company level. 19:46:54

4 That's not what I've prepared to testify on. 19:46:57

5 On a personal level, there -- I can say 19:47:00

6 that there are products that the -- where the -- 19:47:04

7 where, like, the impact of the -- or the -- it's 19:47:18

8 hard for me to say. I can't give you a very crisp 19:47:22

9 and clear and accurate answer to that -- to that 19:47:26

10 question. It's not what I've testified on, and I'd 19:47:28

11 be giving you an inappropriate answer, I think. 19:47:31

12 BY MR. LOESER: 19:47:36

13 Q. If I wanted to have Facebook answer the 19:47:36

14 question whether it does financial analysis of the 19:47:38

15 value of user data that it collects, where would I 19:47:40

16 go in the company to get information about that? 19:47:44

17 Is that the finance department or -- or 19:47:47

18 where would that get reported? 19:47:50

19 MR. BLUME: Objection. Beyond the scope. 19:47:52

20 THE WITNESS: Yeah, I think different 19:47:57

21 teams assess the performance of their products in 19:47:59

22 different ways, and those products involve 19:48:02

23 different kinds of information. 19:48:05

24 So it's really hard to give you a specific 19:48:07

25 answer to that question. I couldn't give you a 19:48:09

Page 145

CONFIDENTIAL

1 specific answer to that question. 19:48:11

2 BY MR. LOESER: 19:48:15

3 Q. Okay. And has Facebook done any analysis 19:48:15

4 of the value of the data it makes available to 19:48:17

5 third parties through the Facebook Social Graph? 19:48:20

6 MR. BLUME: Objection. Scope. 19:48:24

7 THE WITNESS: I've seen some analysis of 19:48:33

8 the impact of the Platform changes that were 19:48:34

9 proposed, and I've also seen and heard about 19:48:37

10 analysis done of the -- of the use of the Facebook 19:48:43

11 Developer Platform in terms of how people use it 19:48:46

12 and how that contributes revenue to Facebook. But 19:48:51

13 I've -- I don't recall seeing analysis specific to, 19:48:58

14 like, the user data itself. 19:49:01

15 BY MR. LOESER: 19:49:04

16 Q. Okay. Well, walk me through the two types 19:49:06

17 of analyses you just mentioned. 19:49:12

18 MR. BLUME: Objection to scope, but he can 19:49:18

19 in his personal capacity. 19:49:21

20 BY MR. LOESER: 19:49:23

21 Q. Well, let me clarify. 19:49:23

22 Your answer was: "I've seen some analysis 19:49:25

23 of the impact of the Platform changes that were 19:49:26

24 proposed." 19:49:29

25 So what's the analysis that you've seen of 19:49:30

Page 146

CONFIDENTIAL

1 the impact of the Platform changes that were 19:49:32
2 proposed? 19:49:34

3 A. So one of the documents I reviewed in 19:49:38
4 preparation for the testimony today seems to -- 19:49:40
5 seems to make an assessment of the various changes 19:49:45
6 that were proposed to be launched and estimates the 19:49:48
7 impact that might have on Facebook's revenues from 19:49:53
8 developers. 19:49:57

9 So I recall reviewing a document of that 19:50:00
10 form. 19:50:02

11 Q. And can you tell me more about that 19:50:03
12 document; who created it and when it was created? 19:50:05

13 A. I don't know who created it or when it was 19:50:10
14 created, but I do know it was -- my understanding 19:50:12
15 is it was previously produced in -- in this 19:50:15
16 litigation. So it should be available to you. 19:50:20

17 Q. Okay. We'll follow up with Mr. Blume and 19:50:28
18 try and pin down that document. 19:50:33

19 And the second thing you said was an 19:50:35
20 assessment of the various changes that were 19:50:39
21 proposed and estimates of the impact they might 19:50:46
22 have on Facebook's revenue from developers. 19:50:48

23 So what was that analysis? 19:50:51

24 A. So I think that's the thing I've just -- 19:50:52
25 that's the thing I've just talked about. 19:50:54

Page 147

CONFIDENTIAL

1 Q. Okay. Was there -- I thought you 19:50:56
2 mentioned two different assessments that you saw. 19:50:58
3 A. So that -- that document, I -- I saw in 19:51:03
4 preparation for this case, this testimony. 19:51:06
5 The other thing I recall mentioning is in 19:51:10
6 my personal capacity, I recall there being analysis 19:51:16
7 done of the -- the revenue that Facebook games 19:51:20
8 provided to the Facebook company. 19:51:28
9 But I don't recall a specific document on 19:51:32
10 that, and I have not reviewed a document of that 19:51:36
11 form in reference -- in preparation for this 19:51:38
12 testimony. 19:51:41
13 Q. And this may be covered by what you said 19:51:45
14 before, but has Facebook ever analyzed the 19:51:47
15 financial or other business benefits Facebook 19:51:49
16 obtained by allowing third-party access to Facebook 19:51:52
17 user friends data in particular? 19:51:56
18 MR. BLUME: Objection to scope. 19:52:00
19 THE WITNESS: I don't recall seeing any 19:52:03
20 analysis that was specifically limited to friends 19:52:07
21 data, no. 19:52:12
22 BY MR. LOESER: 19:52:14
23 Q. And what about analysis that was limited 19:52:16
24 to deprecated permissions more broadly? 19:52:19
25 A. I have not seen analysis related to 19:52:24

Page 148

CONFIDENTIAL

1 deprecated permissions specifically, no. 19:52:27

2 Q. And has Facebook ever analyzed the 19:52:35

3 financial or other business impact of continuing to 19:52:37

4 allow certain apps and partners to have access to 19:52:40

5 friend-sharing after publicly deprecating 19:52:46

6 friend-sharing permissions? 19:52:49

7 A. So here we need to be specific when we 19:52:51

8 talk about friend-sharing permissions versus your 19:52:54

9 broader definition of friends data. 19:52:57

10 No, I -- I have not seen and am not aware 19:53:00

11 of any analysis that was done relating to 19:53:04

12 extensions allowing apps to continue to have 19:53:10

13 access -- some apps to continue to have access to 19:53:14

14 the friend permissions after they were more 19:53:17

15 publicly deprecated. 19:53:22

16 Q. And if the question is not friends 19:53:24

17 permissions specifically, but deprecated 19:53:27

18 permissions, does that change your answer? 19:53:30

19 A. I am not aware of any analysis that was 19:53:33

20 done to understand the impact of deprecated 19:53:36

21 permissions in particular. 19:53:40

22 As I testified previously, I -- sorry. 19:53:44

23 Q. Go ahead. I'm sorry. 19:53:46

24 A. As I testified previously, I have seen 19:53:50

25 analysis of the impact of the changes in general, 19:53:53

Page 149

CONFIDENTIAL

1 but not specifically I recall seeing anything 19:53:59

2 related to just the deprecation of permissions. 19:54:03

3 Q. And did Facebook evaluate the loss of 19:54:08

4 revenue that could occur if a Facebook partner or 19:54:13

5 partners stopped doing business with Facebook 19:54:17

6 because Facebook deprecated permissions that the 19:54:20

7 partner used? 19:54:23

8 A. I don't recall seeing any analysis of 19:54:29

9 the -- on an app-specific basis or a 19:54:35

10 partner-specific basis. 19:54:40

11 It's possible that people that worked with 19:54:43

12 that partner might assert a potential loss of 19:54:45

13 revenue, but I don't recall any, you know, formal 19:54:52

14 analysis being done of -- of the financial impact 19:54:55

15 of deprecating something. 19:54:58

16 Q. And you say you don't recall, but I want 19:55:01

17 to make sure I understand what you're saying. 19:55:04

18 Did Facebook do that analysis, do you 19:55:06

19 know? 19:55:10

20 A. I do not know, and I have not seen any 19:55:11

21 evidence in preparation for this that they did. 19:55:13

22 Q. And if you were to find -- to search for 19:55:16

23 the answer to that question, who would you ask? 19:55:19

24 A. I would ask Ime, probably, who was 19:55:26

25 involved in -- who led the Partnerships team around 19:55:35

Page 150

CONFIDENTIAL

1 this time -- sorry, let me be clearer about around 19:55:39
2 this time. 19:55:42

3 In the period 2013 to 2018, I believe, he 19:55:45
4 may be aware of whether or not such analysis was 19:55:51
5 done. 19:55:53

6 Q. So -- sorry, I have to reach for a 19:56:02
7 document. 19:56:05

8 Going back to the notice, on Topic 6, you 19:56:06
9 have -- the last part of that notice calls for 19:56:08
10 testimony about the revenue impact and net profits 19:56:15
11 for Facebook relating to friend-sharing throughout 19:56:19
12 the class period. Correct? 19:56:21

13 A. I'll wait to see till it comes on the 19:56:26
14 screen. 19:56:29

15 Q. Sure. And so I am going to ask you a 19:56:30
16 question -- yeah, I'm going to ask you a question 19:56:36
17 based on the notice, and you can tell me what 19:56:38
18 Facebook's answer is. 19:56:40

19 But what is the revenue impact and net 19:56:41
20 profits for Facebook related to friend-sharing 19:56:44
21 before Facebook publicly deprecated friend-sharing 19:56:46
22 APIs? 19:56:49

23 A. My understanding is that Facebook did 19:56:53
24 not -- has not done analysis as to the revenue 19:56:56
25 impact and net profits related to friend-sharing. 19:57:01

Page 151

CONFIDENTIAL

1 Q. And what is the revenue impact and net 19:57:07
2 profits for Facebook related to friend-sharing 19:57:09
3 after publicly deprecating friend-sharing APIs but 19:57:16
4 continuing to allow friend-sharing for certain apps 19:57:19
5 and partners? 19:57:21

6 A. In preparation for this -- this testimony, 19:57:24
7 I attempted to see whether or not any such analysis 19:57:28
8 has been done. 19:57:33

9 My understanding is that no analysis was 19:57:34
10 done. I am not aware of any analysis having been 19:57:36
11 done about the revenue impact to net profits 19:57:40
12 relating to friend-sharing before or after the 19:57:44
13 deprecation period. 19:57:47

14 Q. And who -- what did you do to educate 19:57:48
15 yourself on that question? 19:57:52

16 A. I spoke to Ime, and I reviewed the 19:57:56
17 document -- several documents provided to me in 19:58:03
18 this case. 19:58:05

19 Q. So I'm about to move on to Topic 7, and 19:58:27
20 we've been going for about an hour, so it's 19:58:30
21 probably a good time to take a break. We also have 19:58:33
22 your notes, and I just need to quickly look at them 19:58:36
23 and see if I have any other questions about Topic 6 19:58:38
24 regarding your notes. 19:58:39

25 If you don't want to take a break, I can 19:58:42

CONFIDENTIAL

1 plow ahead, but it's been an hour, and if you want 19:58:42
2 to take a break, that's fine too. 19:58:42
3 A. Yeah, let's just take five minutes. That 19:58:44
4 would be good. I'll just stretch a bit; make sure 19:58:48
5 I'm fresh. 19:58:51
6 THE VIDEO OPERATOR: We're off the record 19:58:52
7 at 7:58 P.M. 19:58:53
8 (Recess from 7:58 P.M. to 8:12 P.M.) 19:58:55
9 THE VIDEO OPERATOR: We're back on the 20:12:47
10 record. It's 8:12 P.M. 20:12:48
11 MR. LOESER: Mr. Cross, we're going to 20:12:56
12 mark as an exhibit the notes that -- that you 20:12:57
13 provided to your counsel who then provided them to 20:13:01
14 us. 20:13:03
15 And if we have time today, we might come 20:13:14
16 back and ask a few questions about them, but for 20:13:17
17 now, I just wanted to mark them as an exhibit. So 20:13:19
18 we can just put them up, introduce them, and move 20:13:22
19 on. 20:13:25
20 (Deposition Exhibit 335 was marked for 20:13:25
21 identification.) 20:13:29
22 BY MR. LOESER: 20:13:30
23 Q. I do have, actually, one -- we don't need 20:13:31
24 to put the exhibit back up, but I had noticed in 20:13:33
25 your notes when I asked you earlier who had 20:13:35

CONFIDENTIAL

1 developed friend-sharing, you couldn't recall, but 20:13:38
2 your notes indicate it was Luke Shepherd, 20:13:40
3 Ari Steinberg, and Alex Himmel. Is that correct? 20:13:43
4 A. Those are three names of people that I 20:13:49
5 believe to have been involved in the early 20:13:51
6 development of the Facebook Developer Platform 20:13:53
7 which included sharing friends data as part of the 20:13:55
8 model. 20:14:02
9 Q. And when you say "early development," 20:14:02
10 what's the time period that you're referring to? 20:14:03
11 A. My understanding is that Ari Steinberg was 20:14:11
12 involved in the 2007/2008 time frame, although I 20:14:14
13 don't have the specifics. 20:14:19
14 Luke Shepherd was involved in the Platform 20:14:21
15 when I joined in September 2010. I'm not sure when 20:14:24
16 his tenure in that space began or ended. 20:14:29
17 And Alex Himmel is another person that I 20:14:36
18 know was involved in the Facebook Developer 20:14:39
19 Platform. 20:14:40
20 Whether or not these folks were 20:14:42
21 specifically involved in the original design of the 20:14:44
22 platform, which included friend-sharing, it's hard 20:14:49
23 for me to know specifically. 20:14:53
24 Q. Okay. Thank you. 20:14:57
25 Let's go back to the notice. We're going 20:14:59

Page 154

CONFIDENTIAL

1 to move on to Topic 7. 20:15:00

2 It's a little longer, so I won't read the 20:15:08

3 whole thing into the record, but I gather you have 20:15:10

4 read all of Topic 7 and you are prepared to testify 20:15:12

5 about this topic. 20:15:19

6 And you've described what you did to 20:15:34

7 prepare for Topic 6. 20:15:36

8 When you prepared for Topic 6, were you 20:15:38

9 also at the same time preparing for Topic 7? 20:15:40

10 A. That's correct. I was preparing for the 20:15:44

11 two in parallel. 20:15:45

12 Q. And is there anybody that you talked to at 20:15:49

13 Facebook to get information about Topic 7 that is 20:15:51

14 different than the folks that you talked to about 20:15:54

15 Topic 6? 20:15:57

16 A. No. The set of people I talked to, I 20:15:59

17 talked to about all of the matters I was preparing 20:16:03

18 to testify on. 20:16:05

19 Q. And is there any component of Topic 7 that 20:16:14

20 you only have knowledge of based upon the 20:16:17

21 preparations that you did for this deposition? 20:16:19

22 A. Yes. I think 7-a, each whitelisted 20:16:24

23 entity; b, only -- so b, I have some personal 20:16:33

24 experience there; c, I also have some personal 20:16:46

25 experience. 20:16:56

Page 155

CONFIDENTIAL

1 D -- could you scroll d onto the screen, 20:17:02

2 please? There you go. That was easy. 20:17:05

3 So I think I have some personal experience 20:17:08

4 in all, but with 7-a, primarily I'm relying on the 20:17:11

5 forensic work that was done after my involvement in 20:17:19

6 the Facebook Developer Platform to answer those 20:17:25

7 questions. 20:17:29

8 Q. And based on your preparation with regard 20:17:31

9 to Topic 7, do you believe you are reasonably 20:17:33

10 educated to testify on these matters? 20:17:37

11 A. I believe I am reasonably educated to 20:17:39

12 testify. I've done as much as I could to prepare. 20:17:41

13 Q. And last night, your counsel informed us 20:17:53

14 that you are not prepared to testify about call 20:17:54

15 logs, APIs, or permissions granted to any 20:17:57

16 particular entity. 20:18:00

17 And is that -- is that your understanding? 20:18:03

18 A. Yeah. We -- I want to make sure that I -- 20:18:12

19 in answering those questions, I want to make sure I 20:18:15

20 have done as much preparation as possible, and I 20:18:17

21 think a couple more -- a bit more time to make sure 20:18:25

22 I can speak to those topics would be valuable. 20:18:28

23 Q. Okay. And over the course of your 20:18:33

24 employment at Facebook, did you develop any 20:18:34

25 personal knowledge of call logs, APIs, or 20:18:36

Page 156

CONFIDENTIAL

1 permissions granted to any particular entity? 20:18:40

2 A. I developed -- I was in -- I had access to 20:18:44

3 and would have used some of the tools that would 20:18:48

4 help analyze call logs and Platform API usage and, 20:18:56

5 in the course of doing that, would have seen 20:19:03

6 information to do with particular apps. 20:19:05

7 But that's a long time ago, and I wouldn't 20:19:10

8 remember the specifics, and I don't know what in 20:19:13

9 general Facebook would have access to today, many 20:19:15

10 years after -- many years after my time directly 20:19:18

11 involved in this stuff. 20:19:23

12 Q. Okay. Thank you. 20:19:24

13 Mr. Cross, please explain what it means to 20:19:27

14 "whitelist" an app or a partner in the context of 20:19:29

15 access to APIs. 20:19:33

16 A. The -- can you be specific? 20:19:47

17 Which APIs are we referring to here? 20:19:49

18 Q. Just generally, back to making sure we 20:19:52

19 have the terminology down and I'm using the right 20:19:54

20 words to talk about what we're discussing, there's, 20:19:57

21 obviously, a lot of documents that talk about, 20:19:59

22 refer to, and use the term "whitelist," and I 20:20:01

23 gather that's a term that can be applied in a 20:20:05

24 variety of contexts. 20:20:07

25 But when it's connected to granting access 20:20:08

Page 157

CONFIDENTIAL

1 to particular APIs or -- I'm continually getting 20:20:11
2 this wrong -- permissions, does it have a 20:20:17
3 particular meaning? 20:20:20

4 A. In the context -- we referred to in the 20:20:21
5 context of the Facebook Developer Platform again? 20:20:23

6 Q. Yeah. Yes. 20:20:26

7 A. So in that context, I understand 20:20:32
8 "whitelisting" to refer to where a given 20:20:33
9 application is added to a list of applications 20:20:38
10 that -- whose behavior or whose -- the behavior of 20:20:45
11 the API, and the Facebook Developer Platform is 20:20:50
12 modified in some way for those applications. 20:20:53

13 Q. And consistent with that definition, when 20:21:05
14 did Facebook first start whitelisting any app or 20:21:07
15 partner? 20:21:10

16 A. So the -- given that the concept of 20:21:14
17 whitelisting in general applies to making -- you 20:21:16
18 know, modifying the changes to the -- modifying the 20:21:21
19 behavior of the Facebook Developer Platform, then 20:21:24
20 whitelisting in some form has been used 20:21:27
21 consistently throughout the development of the 20:21:31
22 Facebook Developer Platform in some way. 20:21:35

23 Q. And, again, I want to make sure I have the 20:21:46
24 technology correct, but what does it mean to 20:21:48
25 whitelist friend-sharing APIs for an app? 20:21:52

Page 158

CONFIDENTIAL

1 Or let me put it this way: What does it 20:21:55
2 mean to whitelist an app's ability to collect 20:21:58
3 friend-sharing data? 20:22:00
4 A. So this would refer to what we mean by 20:22:06
5 "friend-sharing data." In this context, one way 20:22:11
6 that that could have manifested is where an app has 20:22:20
7 access to APIs and permissions which were not 20:22:28
8 generally available to other Facebook developers 20:22:33
9 and applications at the time. 20:22:38
10 Q. Okay. And I've seen in Facebook's 20:22:42
11 documents "whitelisting" used in reference to apps, 20:22:45
12 but I've also seen it used in reference to 20:22:50
13 partners. 20:22:52
14 Is there a different definition that 20:22:53
15 Facebook uses when thinking of whitelisting 20:22:55
16 partners in the context of the Platform? 20:22:59
17 A. So back to my original definition of 20:23:04
18 "application" being a very specific entity in the 20:23:06
19 Facebook Developer Platform ecosystem, a partner 20:23:08
20 would refer to an entity, a -- for example, a 20:23:14
21 company. And that company may have several, one or 20:23:17
22 more, Facebook applications, and those applications 20:23:24
23 may or may not have been whitelisted for 20:23:32
24 alternative API behavior. 20:23:35
25 So in that context, you know, when a -- a 20:23:38

Page 159

CONFIDENTIAL

1 partner is -- if you see the phrase "partner has 20:23:41
2 been whitelisted," what specifically happens in 20:23:45
3 the -- in the -- in the code base is that the 20:23:48
4 applications owned -- the Facebook applications 20:23:54
5 owned and maintained by that partner, the app IDs 20:23:59
6 have been granted some modification to the standard 20:24:05
7 API behavior. 20:24:09

8 Q. And through those modifications, those 20:24:12
9 partners, vis-à-vis their apps or, if it's a 20:24:15
10 developer, the developer vis-à-vis its app would 20:24:19
11 gain access to friend data that would not otherwise 20:24:23
12 have been available to that app or partner. 20:24:28

13 Is that a fair description? 20:24:33

14 A. Well, it's a wide range of whitelists and 20:24:35
15 capabilities that were in the system. Many of 20:24:39
16 them, in fact, my understanding is the vast 20:24:44
17 majority of them were not related to friend data at 20:24:47
18 all. 20:24:49

19 Q. Okay. And, in fact, there's plenty of 20:24:54
20 discussion in Facebook documents about the other 20:24:56
21 permissions that were deprecated with Version 2 20:24:58
22 that also were whitelisted for certain apps and 20:25:03
23 partners. Right? 20:25:07

24 A. There's -- when you say "whitelisted," 20:25:09
25 what time period are you referring to here? 20:25:13

CONFIDENTIAL

1 It's very specific, given that 20:25:15
2 whitelisting as a concept is something that's very 20:25:17
3 common in the industry and will have been used in 20:25:21
4 this context for many years. 20:25:24

5 Q. Sure. Is the use of whitelisting 20:25:26
6 vis-à-vis the Facebook Platform, did that mean 20:25:30
7 something different at different times in 20:25:35
8 Facebook's lifespan? 20:25:38

9 A. Well, the general definition of 20:25:42
10 whitelisting in the context of the Facebook 20:25:44
11 Platform is that by being on a whitelist, you get 20:25:46
12 some kind of different behavior -- the Platform 20:25:50
13 behaves in some kind of different way to people not 20:25:54
14 on the whitelist. 20:25:57

15 Exactly what that behavior is depends on 20:25:59
16 specifically what the capability is. 20:26:02

17 And so, again, over time, the high -- at 20:26:06
18 the conceptual level, the concept of whitelisting 20:26:11
19 hasn't changed, but exactly which whitelists 20:26:15
20 existed, for what purpose they were used, and who 20:26:18
21 had access to them at any given time will have 20:26:21
22 changed considerably over time. 20:26:23

23 Q. Okay. And so we've talked about 20:26:26
24 whitelisting. 20:26:28

25 Let's talk about private APIs for a 20:26:29

Page 161

CONFIDENTIAL

1 minute. 20:26:32

2 Does Facebook conceive of private APIs as 20:26:32

3 something different than whitelisting? 20:26:36

4 A. I think we discussed the definition of 20:26:42

5 private APIs earlier in the -- in the testimony. 20:26:44

6 So that would be, in my -- in my determination, 20:26:46

7 APIs or behaviors which were not available -- in 20:26:55

8 this case, "private APIs" would typically refer to 20:27:01

9 APIs or permissions that were not generally 20:27:04

10 available. 20:27:06

11 Whitelisting is the concept of who has 20:27:07

12 access to the private APIs, but there is also 20:27:10

13 whitelisting which is nothing to do with private 20:27:15

14 APIs or permissions in any way. 20:27:19

15 Q. And your answer probably helps to explain 20:27:22

16 why there is some confusion in the documents about 20:27:25

17 this because these terms do seem to get -- they 20:27:27

18 seem overlapping but also different; so I want to 20:27:30

19 make sure I understand. 20:27:33

20 The only way an app that is created by a 20:27:34

21 developer that is not a partner with Facebook can 20:27:40

22 get access to publicly deprecated APIs is through a 20:27:43

23 whitelist. Right? 20:27:47

24 A. That would depend on the precise time 20:27:50

25 we're talking about. It would also depend on when 20:27:53

Page 162

CONFIDENTIAL

1 the application was created. 20:27:56

2 Q. Okay. Well, let's talk about 2014 to the 20:27:59

3 present. 20:28:02

4 Is there a way other than a whitelist for 20:28:04

5 a developer or an app that is not considered a 20:28:07

6 partner of Facebook's to get access to publicly 20:28:10

7 deprecated permissions? 20:28:13

8 A. Via permission being publicly 20:28:21

9 deprecated -- let's take an example, I think, is 20:28:23

10 the easiest way to answer that question. 20:28:26

11 So the -- where permissions which were 20:28:28

12 publicly available to API Version 1 which were not 20:28:33

13 publicly available in API Version 2, for 20:28:37

14 applications that originally could call API 20:28:41

15 Version 1 that later could only call API Version 2, 20:28:45

16 when that public deprecation was complete, the only 20:28:52

17 way to access those publicly deprecated permissions 20:28:56

18 would have been to be on a whitelist; one or more 20:29:01

19 whitelists. 20:29:06

20 Q. And so developers -- well, let's start 20:29:09

21 with apps. 20:29:12

22 Apps could be on that whitelist, right? 20:29:13

23 A. In the context of the Facebook Developer 20:29:17

24 Platform and specifically referring to app-based 20:29:18

25 whitelisting -- there are other forms of 20:29:21

Page 163

CONFIDENTIAL

1 whitelisting available -- then, yes, the 20:29:23

2 application ID would have been on a whitelist. 20:29:28

3 Q. And partners could be on a whitelist too. 20:29:33

4 But in order for that to be functional, they had to 20:29:39

5 have a private API? 20:29:41

6 A. Sorry. I think we're getting our concepts 20:29:44

7 mixed up here, and it's getting hard to answer -- 20:29:47

8 answer the questions. 20:29:50

9 So how do you want to proceed? I feel 20:29:52

10 like we may need to reclarify some of these 20:29:56

11 definitions because you're mixing them up in your 20:29:59

12 questions. 20:30:02

13 Q. All I'm trying to do is figure out what 20:30:03

14 the distinction is between a whitelist and a 20:30:05

15 private API, and specifically in the context of 20:30:08

16 giving a third-party access to deprecated 20:30:10

17 permissions after 2014. 20:30:12

18 So is there a difference between, in that 20:30:14

19 context, a whitelist and a private API? 20:30:16

20 A. Yes. As I previously testified, a 20:30:20

21 whitelist is a -- a mechanism by which -- in the 20:30:22

22 context of the Facebook Platform, an app ID is 20:30:26

23 specified in some way as having alternative -- you 20:30:30

24 know, having a different API behavior than happens 20:30:33

25 that are not on the whit list. 20:30:37

Page 164

CONFIDENTIAL

1 Private APIs are -- some of the things 20:30:39
2 that you could be whitelisted for, but there are 20:30:43
3 other things that you could also be whitelisted 20:30:45
4 for. For example, rate limit behavior. Different 20:30:48
5 rate limit behavior. Right? 20:30:51

6 So whitelisting is the concept by which an 20:30:53
7 application ID, in the -- sorry. 20:30:56

8 Whitelisting is the concept by which an 20:30:59
9 application ID in the context of the Facebook 20:31:02
10 Platform is offered some deeper, nonstandard, or 20:31:03
11 nonpublic behavior, different behavior. 20:31:09

12 And then there are some whitelists, 20:31:11
13 specifically called "capabilities," that would 20:31:16
14 determine exactly what behavior those applications 20:31:18
15 had that was different to the standard. 20:31:23

16 Q. Okay. And are private APIs established 20:31:28
17 through a contract between Facebook and a Facebook 20:31:30
18 partner? 20:31:32

19 A. Not always. Not always. There -- again, 20:31:38
20 there are a number of private APIs and a number of 20:31:42
21 different private behaviors -- different behaviors. 20:31:45
22 Some of those would be governed -- granted under a 20:31:49
23 contract; others would not. 20:31:53

24 For example, rate-limiting; you wouldn't 20:31:56
25 necessarily expect a developer to agree to a 20:31:58

CONFIDENTIAL

1 contract to be on the rate-limit whitelist. 20:32:01

2 Q. What is a "rate-limit whitelist"? 20:32:06

3 A. So "rate limits" refers to the number of 20:32:09

4 API calls that an application can make within a 20:32:14

5 given time period in a number of different, 20:32:17

6 complicated ways. 20:32:20

7 There's the standard set of how the rate 20:32:22

8 limits work. 20:32:26

9 And then, for some applications that 20:32:27

10 needed to operate differently, then there was a 20:32:32

11 whitelist that allowed those rate limits to be 20:32:35

12 changed for certain applications. 20:32:39

13 And so, again, that's an example of a 20:32:43

14 whitelist, which is a concept implemented by a 20:32:45

15 capability, which is a specific thing that modified 20:32:49

16 the behavior of the API for the people on the 20:32:53

17 whitelist that was not in any way related to 20:32:56

18 friends data. 20:32:59

19 Q. And so one of the ways private APIs were 20:33:01

20 used at Facebook was to enable certain Facebook 20:33:05

21 partners to continue to have access to friends 20:33:08

22 data. Right? 20:33:11

23 A. Can you be specific as to what time period 20:33:14

24 you're talking about here? Because this -- the 20:33:16

25 time periods here matter greatly in the specificity 20:33:18

Page 166

CONFIDENTIAL

1 of my answers. 20:33:22

2 Q. So when did private APIs first appear at 20:33:24

3 Facebook? 20:33:29

4 A. The -- the concept of private API, I -- 20:33:33

5 you're -- I'm referring to any API or permission 20:33:37

6 that was not generally available. 20:33:41

7 When the Facebook Developer Platform was 20:33:47

8 launched, it was launched with launch partners. 20:33:49

9 Actually, a better example is, let's say, 20:33:52

10 Facebook Connect in 2008. There were a number 20:33:55

11 of -- Facebook Connect as a product was -- before 20:33:59

12 it was launched -- not publicly available; and yet 20:34:05

13 on launch day, there were a number of partners that 20:34:08

14 had built integrations with it. 20:34:11

15 Before the launch, you could consider 20:34:14

16 Facebook Connect a private API; and, therefore, 20:34:16

17 access to it was governed by a whitelist. 20:34:20

18 After the launch, Facebook Connect was 20:34:23

19 generally available to all developers, and so you 20:34:25

20 didn't need to be on a whitelist to access it. 20:34:28

21 So whitelists are an industry-standard way 20:34:31

22 of modifying API behavior in certain circumstances, 20:34:34

23 launching new products, and offering them to your 20:34:39

24 launch partners in advance of them being generally 20:34:43

25 available. 20:34:45

Page 167

CONFIDENTIAL

1 And, in the context of the Facebook 20:34:48
2 Platform in this litigation, it's also possible to 20:34:50
3 use a whitelist to grant some developers and 20:34:57
4 partners access to permissions that had been 20:35:01
5 removed from other developers. 20:35:04

6 Q. Okay. And when was the first time that 20:35:09
7 partners obtained access to publicly deprecated 20:35:11
8 friend permissions via a private API? 20:35:18

9 (Rose Ring joined the deposition.) 20:35:21

10 THE WITNESS: The -- strange noise. 20:35:25

11 So, specifically, when it comes to friend 20:35:28
12 permissions, as a set of things that were 20:35:32
13 deprecated, then up until beginning April 30, 2015, 20:35:35
14 if your app had been created before April 30, 2014, 20:35:44
15 then you would have access to those permissions. 20:35:50

16 When the deprecation of API 1 -- the 20:35:55
17 public deprecation of API V1 began on April 30, 20:36:00
18 2015, that's when the -- that's the beginning where 20:36:03
19 an application that would otherwise have lost 20:36:07
20 access to their friend permissions could have 20:36:09
21 continued to access them if they were on a 20:36:13
22 whitelist. 20:36:18

23 BY MR. LOESER: 20:36:19

24 Q. Through private APIs. 20:36:19

25 A. Well, via being on a whitelist. 20:36:22

Page 168

CONFIDENTIAL

1 In this case, we're specifically referring 20:36:25
2 to friend permissions, which is, I think, what your 20:36:27
3 original question was. 20:36:30

4 Q. And what is the "Capability" tool at 20:36:33
5 Facebook? 20:36:36

6 A. The Capability tool is an internal tool 20:36:39
7 used at Facebook to manage which application -- to 20:36:42
8 manage applications and whitelists. 20:36:47

9 (Discussion off the record.) 20:36:50

10 MS. RING: I am very sorry. This is 20:37:12
11 Rose Ring, and I am counsel for Meta. I'm sorry 20:37:12
12 for not announcing myself. 20:37:16

13 BY MR. LOESER: 20:37:26

14 Q. And, Mr. Cross, you were starting to 20:37:28
15 describe the Capability tool, so keep going. 20:37:31

16 A. So the Capability tool is an internal tool 20:37:35
17 at Facebook Meta that's used to manage which 20:37:39
18 applications have access to which capabilities; a 20:37:44
19 "capability" being a -- a mechanism for changing 20:37:51
20 the -- modifying the behavior of the Facebook 20:37:58
21 Developer Platform. 20:38:01

22 So with an application having access to a 20:38:02
23 capability, you would say it had been 20:38:05
24 "whitelisted." 20:38:07

25 Q. And for what period of time has the 20:38:09

Page 169

CONFIDENTIAL

1 Capability tool been in existence? 20:38:13

2 A. My understanding is it was built in around 20:38:16

3 2011 and replaced a previous tool that did a 20:38:20

4 similar job. 20:38:30

5 But the development, as I understand it, 20:38:31

6 began in around 2011. 20:38:33

7 Q. And do you know what the previous tool was 20:38:36

8 called? 20:38:38

9 A. There was a previous tool called 20:38:40

10 "Pearly Gates." 20:38:42

11 Q. Okay. It seems like it had bold 20:38:47

12 ambitions. 20:38:49

13 So -- and Pearly Gates was self-deprecated 20:38:53

14 and replaced by the capability tool? 20:39:01

15 A. My understanding is that the Capabilities 20:39:04

16 tool replaced Pearly Gates as a way of managing 20:39:05

17 apps and which whitelists they had access -- which 20:39:12

18 capabilities they had access to. 20:39:17

19 Q. And do you know why it was called 20:39:19

20 "Pearly Gates"? 20:39:21

21 A. I do not. 20:39:23

22 Q. And what are "Gatekeepers"? 20:39:26

23 A. So a Gatekeeper is -- or Gatekeepers. 20:39:30

24 Gatekeeper is a tool at Meta which is widely used 20:39:34

25 to gate access to features within the Facebook apps 20:39:38

Page 170

CONFIDENTIAL

1 and services, including the Facebook app itself and 20:39:47
2 a number of other services inside the company. 20:39:56
3 "Gatekeepers" refers to the set of checks 20:39:59
4 that exist in code to determine who and what has 20:40:09
5 access to which features. 20:40:14
6 I think the best way to explain it is with 20:40:16
7 an example. 20:40:18
8 Typically, when Facebook develops a new 20:40:20
9 feature, the engineers will -- will gate that 20:40:22
10 feature behind a Gatekeeper. 20:40:29
11 So let's imagine Facebook Dating. So the 20:40:31
12 team working on Facebook Dating would be working on 20:40:36
13 that feature. That feature would be gated by a 20:40:39
14 gatekeeper or multiple gatekeepers, and then the 20:40:44
15 Gatekeeper tool would be used to determine who had 20:40:48
16 access to Facebook Dating as a feature. 20:40:50
17 And so Gatekeeper is a mechanism by which 20:40:54
18 Meta typically controls who has access to which 20:41:00
19 features across many aspects of our business. 20:41:04
20 Q. So the Capabilities tool is more or less a 20:41:11
21 tracking device, and the Gatekeeper is more or less 20:41:13
22 a functional system. 20:41:17
23 Is that a fair description? 20:41:19
24 A. I wouldn't characterize them that way. 20:41:20
25 They both, in some ways, do a similar job. 20:41:22

Page 171

CONFIDENTIAL

1 The Gatekeeper tool is widely used at Meta 20:41:26
2 to manage all kinds of conditional access to 20:41:32
3 things. 20:41:37

4 The Capabilities tool is specifically just 20:41:38
5 used for the Facebook Developer Platform and how to 20:41:41
6 manage which applications have access to which 20:41:47
7 additional features. 20:41:51

8 Q. Okay. So if you wanted to identify every 20:41:52
9 single app that had been whitelisted and, because 20:41:54
10 of that, received deprecated permissions, would all 20:41:59
11 of your information be in the Capability tool, or 20:42:03
12 would you also need to look at the Gatekeeper tool? 20:42:06

13 A. My understanding is that most of the 20:42:11
14 whitelists -- most of the way in which publicly 20:42:16
15 deprecated permissions were made available to 20:42:23
16 applications was via the Capabilities tool. 20:42:28

17 There was, as I understand it, some 20:42:32
18 whitelists managed by Gatekeeper, and an effort was 20:42:36
19 undertaken to migrate that management from 20:42:40
20 Gatekeeper to the Capabilities tool for 20:42:42
21 consistency. 20:42:45

22 Q. And when was that done? 20:42:46

23 A. I don't have the information as to when 20:42:50
24 that was done. 20:42:52

25 Q. So, today, is the Capability tool the more 20:42:54

Page 172

CONFIDENTIAL

1 complete set of information on whitelisted 20:42:58

2 entities? 20:43:01

3 A. When it comes to Facebook Developer 20:43:02

4 Platform and app IDs being whitelisted, my 20:43:04

5 understanding is that the Capabilities tool is the 20:43:09

6 primary and most complete system that tracks which 20:43:11

7 apps have access to which capabilities. 20:43:17

8 Q. And what is "Sitevars"? 20:43:20

9 A. Sitevars is another mechanism that is used 20:43:25

10 at Meta to control and modify the behavior of -- of 20:43:30

11 various products. It has a different set of 20:43:36

12 features the Gatekeeper and the Capabilities tool 20:43:39

13 do not have. 20:43:45

14 Q. And are there entities that have access to 20:43:46

15 publicly deprecated permissions tracked by Sitevars 20:43:48

16 that are not tracked by the Capabilities tool? 20:43:52

17 A. My understanding, but -- from talking to 20:43:56

18 the engineers involved in this is that no, Sitevars 20:43:59

19 would not be a way of determining whether or not an 20:44:06

20 application had access to publicly deprecated 20:44:11

21 permissions. 20:44:14

22 MR. LOESER: Okay. If we could have 20:44:18

23 Tab 9. 20:44:26

24 (Deposition Exhibit 336 was marked for 20:44:26

25 identification.) 20:44:26

Page 173

CONFIDENTIAL

1 MR. LOESER: I'm going to mark the next 20:44:41
2 exhibit. This is Exhibit 336. The Bates number on 20:44:42
3 this is FB-CA-MDL-00200051. 20:44:53
4 And you're looking at, Mr. Cross, an email 20:44:59
5 from you to Zhen Fang, cc to Jackie Chang and 20:45:02
6 Christopher Blizzard, October 31, 2013, "Subject: 20:45:09
7 Docs for Private Platform/Capabilities." 20:45:14
8 Do you see that? 20:45:17
9 A. I do. 20:45:18
10 Q. And do you recall writing this email? 20:45:20
11 A. I do not recall writing it, but I have 20:45:24
12 seen this document as part of my preparation for my 20:45:28
13 testimony today. 20:45:31
14 Q. Okay. And you write: 20:45:32
15 "Hey Zhen, As we're deep in looking at 20:45:34
16 Capabilities, it's clear:" 20:45:38
17 Can you read the Number 1? 20:45:39
18 A. (Reading): 20:45:41
19 "Number 1, we have no idea what most of 20:45:42
20 them are - the documentation is scattered all 20:45:44
21 over, if there at all." 20:45:47
22 Q. And do you recall -- or explain for me if 20:45:53
23 Facebook had a tough time figuring out what all of 20:45:56
24 the -- what all was supposed to be included on the 20:46:00
25 Capabilities tool or who all had been whitelisted 20:46:03

Page 174

CONFIDENTIAL

1 at this time. 20:46:11

2 MR. BLUME: Objection. Compound. 20:46:12

3 THE WITNESS: Yeah. Could you separate 20:46:13

4 the question into two parts because I think the 20:46:14

5 answer -- the answer may be different depending on 20:46:17

6 which part I'm answering. 20:46:20

7 BY MR. LOESER: 20:46:22

8 Q. Sure. It looked like, based upon your 20:46:22

9 email here, that tracking the capabilities that 20:46:24

10 apps had was at this time disorganized and 20:46:28

11 difficult. 20:46:31

12 Is that fair? 20:46:34

13 A. What I -- what's being referred to here is 20:46:35

14 to do with the capabilities themselves and what 20:46:39

15 their behavior was; what each individual capability 20:46:45

16 did or could do. 20:46:50

17 So that's what this is referring to. 20:46:55

18 Q. And so you're proposing here creating a 20:46:59

19 tool that would allow Facebook to better understand 20:47:02

20 and organize the capabilities that the different 20:47:04

21 apps have. Right? 20:47:08

22 A. No. What I'm referring to here is the -- 20:47:12

23 the idea, or the request, to be able to gate 20:47:16

24 documents on the Facebook Developer website based 20:47:21

25 on whether or not the viewer of the website had -- 20:47:26

Page 175

CONFIDENTIAL

1 was a developer of an app that had a specific 20:47:32
2 capability. 20:47:34

3 Q. So what problem were you trying to solve 20:47:36
4 here? 20:47:38

5 Or let me ask it another way. 20:47:41

6 What problem was Facebook trying to solve 20:47:43
7 here? 20:47:45

8 A. What Facebook is trying to solve here is a 20:47:46
9 way to automatically control whether or not a given 20:47:49
10 developer user -- so an individual person -- had 20:47:57
11 the ability to see a document on the Facebook 20:48:01
12 Developer website that was only visible to them if 20:48:04
13 they were the developer of an application that 20:48:08
14 had -- was granted a particular capability. 20:48:11

15 MR. LOESER: Okay. We can go to the next 20:48:30
16 exhibit, Tab 10. 20:48:32

17 (Deposition Exhibit 337 was marked for 20:48:36
18 identification.) 20:48:40

19 BY MR. LOESER: 20:48:53

20 Q. So as we're waiting for the document, 20:48:53
21 Mr. Cross, as we've discussed already today, with 20:48:55
22 the implementation of Graph API Version 2, Facebook 20:48:58
23 had decided to deprecate a number of permissions, 20:49:00
24 right, and had come up with a list of the 20:49:06
25 permissions that would be deprecated. 20:49:09

Page 176

CONFIDENTIAL

1 Is that an accurate description? 20:49:11

2 A. As part of API Version 2 launch, Version 2 20:49:14

3 contained -- there were a number of permissions 20:49:18

4 that were not available to API Version 2 in general 20:49:20

5 that were available in API Version 1. 20:49:24

6 Q. And so if you look at Exhibit 337, which 20:49:30

7 is a -- which is a document that is captioned 20:49:32

8 "Changes made to V2 at F8**User Trust**." 20:49:40

9 Do you see that? 20:49:49

10 A. I do see that. 20:49:50

11 Q. And this appears to be a document that was 20:49:50

12 describing the changes that would be made to the 20:49:52

13 platform in the transition from Version 1 to 20:49:58

14 Version 2. Right? 20:50:01

15 A. It seems to talk about those changes, but 20:50:04

16 it's not clear to me when this document was 20:50:06

17 authored or the audience of the document. 20:50:09

18 Q. Okay. At the very top of the document, 20:50:14

19 you can see that it was authored -- it's a little 20:50:15

20 faint, but it's June 5, 2014. 20:50:18

21 Do you see that? 20:50:22

22 A. I see that there, but it's not clear to me 20:50:24

23 that this is when the document was authored. That 20:50:26

24 may have been when the document was captured. It's 20:50:31

25 hard to read from this exactly what this -- where 20:50:35

Page 177

CONFIDENTIAL

1 this document was posted. It seems to contain -- 20:50:40

2 Q. Okay. And I'll just -- 20:50:48

3 A. Yeah, it -- I'm not clear -- I'm not clear 20:50:50

4 when this document was authored or whether or not 20:50:53

5 that date -- what that date at the top right 20:50:55

6 pertains to. 20:50:58

7 MR. LOESER: Okay. And just for the 20:50:59

8 record, I'll note that the metadata of this 20:51:00

9 document indicates that it was created June 5, 20:51:03

10 2014. The author is Gillian Dunne, and the 20:51:06

11 custodian for the document was Bill Fusz. 20:51:12

12 But I'm just noting that for the record, 20:51:15

13 and perhaps it provides you some context. 20:51:18

14 But all I want to do with this document is 20:51:20

15 look at -- if you go down to the bottom of the 20:51:22

16 first page, there is a statement: "Permissions no 20:51:24

17 longer available in V2.0." 20:51:29

18 Q. And do you see there's a list that begins 20:51:33

19 there and goes onto the next page? 20:51:35

20 A. I do see that. 20:51:37

21 Q. And included in that there's the category 20:51:40

22 that says: "All friends_* permissions have been 20:51:44

23 removed," and then it lists all of them? 20:51:48

24 A. I see a list of permissions, yes. 20:51:51

25 Q. And above that, there's also a number of 20:51:54

Page 178

CONFIDENTIAL

1 other permissions. 20:51:58

2 Now, does this list of deprecated 20:52:02

3 permissions include all permissions that provided 20:52:05

4 for the sharing of friend data? 20:52:09

5 A. Can you -- in this context, can you help 20:52:19

6 me understand what you mean by "friends data"? 20:52:21

7 Q. Yeah. We earlier talked quite a bit about 20:52:25

8 different APIs that didn't have the word "friends" 20:52:27

9 in the permissions but, based on how they worked, 20:52:33

10 resulted in an app's ability to access information 20:52:35

11 about a user's friends. 20:52:39

12 Do you recall that testimony? 20:52:41

13 A. Yes, I recall that testimony. 20:52:42

14 Q. And so looking at this list here, does it 20:52:45

15 appear to you that this removes -- indicates that 20:52:47

16 the deprecated permissions will cover all of the 20:52:54

17 different permissions that existed at the time that 20:52:57

18 allowed access to friends data? 20:53:00

19 A. No. This looks relatively complete in 20:53:06

20 terms of the -- the friends permissions that 20:53:10

21 allowed an app access to a friend's data in terms 20:53:15

22 of the specific things listed here. 20:53:22

23 Your definition earlier was -- included 20:53:25

24 things like a friend's comments on my photos. 20:53:32

25 Through that definition, then other 20:53:40

Page 179

CONFIDENTIAL

1 permissions, including, for example, user_photos, 20:53:42
2 would have also emitted some friends' data; 20:53:46
3 specifically, the comments that they had made on my 20:53:55
4 photos. 20:53:57

5 So that is not a set of things that was 20:53:58
6 removed in API Version 2. 20:54:01

7 What was removed is this list of 20:54:03
8 permissions which, for example, would have 20:54:05
9 allowed -- the friends_photos permission would have 20:54:08
10 allowed an app to access the photos of an app-using 20:54:12
11 user's friends. 20:54:17

12 Q. And at the time that Facebook was 20:54:19
13 analyzing and identifying all of the permissions 20:54:20
14 that provided access to friends data, did Facebook 20:54:25
15 make a list that included every single one of those 20:54:30
16 permissions so that it could identify whether there 20:54:33
17 was any friend-sharing that would be still 20:54:37
18 publicly -- still be a publicly available API? 20:54:41

19 A. No. The focus of the deprecations 20:54:48
20 announced in Version 2 was the removal of the 20:54:50
21 friend permissions and the other permissions that 20:54:53
22 are represented here. 20:54:56

23 Q. Okay. And when you say "friend 20:54:59
24 permissions," you mean the ones that had the word 20:55:00
25 "friends" in them? 20:55:03

CONFIDENTIAL

1 A. When I said "friend permission," that 20:55:05
2 specifically refers to the permissions that have 20:55:07
3 the word "friend" in them. 20:55:10

4 And by "other permissions," I'm referring 20:55:12
5 to the ones listed above; for example -- I'm trying 20:55:14
6 to give an example -- like, manage_friend lists, 20:55:27
7 for example. 20:55:31

8 Q. Now, if we move up this document back to 20:55:33
9 the first page, there's a heading: "New features 20:55:36
10 available in Version 2.0." 20:55:40

11 Do you see that? 20:55:42

12 A. I do. 20:55:43

13 Q. And there is a list of APIs that we've 20:55:43
14 discussed: "Taggable Friends, Invitable Friends, 20:55:47
15 Social Context." 20:55:51

16 And there's one, "Business Mapping API," 20:55:51
17 which we haven't discussed, and another one that 20:55:53
18 looks like it says "Tagged Places API." 20:55:56

19 Do you see that? 20:55:59

20 A. I do see that. 20:55:59

21 Q. And for Taggable Friends, Invitable 20:56:01
22 Friends, Social Context, those are all permissions 20:56:06
23 that it appears did not exist prior to Version 2.0 20:56:09
24 but were going to be introduced at this time. 20:56:13

25 Is that a fair read? 20:56:16

Page 181

CONFIDENTIAL

1 A. These are specifically -- these are APIs 20:56:18
2 that were introduced in Version 2 that were not 20:56:20
3 previously available. 20:56:26

4 These are not permissions; these are APIs. 20:56:27

5 Q. And a number of those APIs that we've 20:56:29
6 discussed did provide access to certain friend 20:56:31
7 information of users not using the apps that would 20:56:33
8 be -- that would have access to those APIs. Right? 20:56:36

9 A. So, yeah. If we go back to the 20:56:41
10 previous -- the previous testimony I gave on this, 20:56:43
11 the Taggable Friend API returned a list of the 20:56:47
12 user's -- a list of the authorized user's friends 20:56:51
13 that were taggable in the application. 20:56:58

14 The amount of data that these APIs 20:57:00
15 returned was very, very limited. In the case of 20:57:03
16 the Taggable Friend API, for example, the amount of 20:57:09
17 data emitted was the name, a URL to a person's 20:57:13
18 profile picture, and a token which could be passed 20:57:17
19 back to the API to tag them in a post. 20:57:21

20 That was the extent of the information 20:57:24
21 available via those APIs -- via the Taggable 20:57:26
22 Friends API, in my recollection. 20:57:30

23 Q. And you say it's limited information, but 20:57:33
24 it is still fairly described as "friends data." 20:57:36
25 Right? 20:57:39

CONFIDENTIAL

1 A. It is some information about a friend or a 20:57:40
2 list of friends. 20:57:45
3 But I would draw a distinction between 20:57:47
4 that and the friend permissions, which gated a very 20:57:50
5 different set of information. 20:57:55
6 Q. And we might need to blow it up a bit, but 20:57:59
7 I'm interested in the Social Context API here, and 20:58:02
8 I'll read it: 20:58:07
9 "We've added a new endpoint to objects 20:58:09
10 and apps that allow you to display a person's 20:58:12
11 friend's actions on an object. For example, 20:58:16
12 you might be able to answer the question 20:58:19
13 'Which of my friends have watched this 20:58:20
14 movie?' by looking at the 20:58:22
15 /{movie-id}?fields=context endpoint." 20:58:24
16 Did I more or less read that sentence 20:58:32
17 accurately? 20:58:34
18 A. You more or less read it accurately. 20:58:35
19 Q. And what is an "endpoint"? 20:58:37
20 A. An "endpoint" is another word to describe 20:58:42
21 an API. It's a -- it's a -- a term used to 20:58:47
22 describe an API that a developer could call. 20:58:54
23 Q. And so using this example of the -- the 20:59:02
24 movie ID context endpoint, it says: 20:59:07
25 "For example, you might be able to answer 20:59:12

Page 183

CONFIDENTIAL

1 the question, 'Which of my friend have 20:59:13
2 watched this movie?'" 20:59:16
3 So, technically, how would that app be 20:59:17
4 able to answer that question with the Social 20:59:20
5 Context API? 20:59:22
6 A. As I talked about earlier, the precise way 20:59:26
7 that the Social Context API worked is not something 20:59:30
8 I am very familiar with. In fact, I am not even 20:59:35
9 sure exactly when it existed and how it behaved. 20:59:41
10 So, I think, like, details on exactly how 20:59:48
11 the Social Context API worked, like, I don't think 20:59:50
12 I can give a clear answer to. 20:59:53
13 MR. LOESER: Mr. Cross, I'm noting for the 21:00:00
14 record that I believe it is now 9:00 P.M. your 21:00:02
15 time. Is that correct? 21:00:04
16 THE WITNESS: It is. But I'm happy to do 21:00:05
17 15 or 20 more minutes if that -- if that would help 21:00:08
18 us get through stuff. 21:00:11
19 If now is a convenient time to break for 21:00:13
20 you, let's break. But if there was a convenient 21:00:15
21 time to break for you that's 10, 15-minutes away, 21:00:17
22 these -- let's do that. I don't want to -- 21:00:21
23 MR. LOESER: Okay. I appreciate your 21:00:24
24 flexibility, and I'll keep going, and we'll pretty 21:00:27
25 quickly get through those 15 minutes. And that 21:00:31

Page 184

CONFIDENTIAL

1 would probably be a good time in where I am to stop 21:00:34

2 anyway. So -- 21:00:37

3 THE WITNESS: Cool. Let's do that. 21:00:38

4 BY MR. LOESER: 21:00:39

5 Q. And, I should say, in order to go further, 21:00:39

6 it would take a lot longer than 15 minutes. So in 21:00:41

7 light of the schedule you have, I think that's a 21:00:44

8 good time to stop. 21:00:46

9 A. Okay. Great. 21:00:47

10 Q. Okay. This is a broad question, and we 21:00:48

11 can start big and go small. 21:00:52

12 But how did Facebook determine what apps 21:00:54

13 to whitelist for friend -- for providing access to 21:00:56

14 friend data? 21:01:03

15 A. Again, to clarify, what do you mean by 21:01:07

16 "friend data"? 21:01:09

17 Do you mean the friends permissions? 21:01:11

18 Q. I mean information about users who are not 21:01:14

19 the users of the app. 21:01:16

20 So whatever information made available via 21:01:19

21 the -- the permission to access the friends -- you 21:01:22

22 know, I'm going to garble the terminology every 21:01:30

23 time I try and do it. 21:01:33

24 But there's an API that grants -- that 21:01:35

25 provides, technically, access to friends 21:01:37

Page 185

CONFIDENTIAL

1 information about the app's users. 21:01:39

2 And I'm interested in understanding when 21:01:41

3 Facebook put an app on a whitelist so that it 21:01:43

4 continued to access the data of a user's friends, 21:01:46

5 how it made that decision. 21:01:48

6 A. Okay. So -- 21:01:50

7 Q. And let me make it even easier for you. 21:01:52

8 The time period I'm interested in is in 21:01:55

9 the transition from Graph API Version 1 to 21:01:58

10 Version 2. 21:02:00

11 A. Okay. So let me -- let me -- let me try 21:02:01

12 and play back some -- some context, I think, is 21:02:07

13 important to the answer here. 21:02:10

14 So, first of all, as you have kind of 21:02:15

15 defined "friends data" and we've discussed it 21:02:20

16 earlier in this testimony, like, there are APIs 21:02:24

17 that were available publicly in Version 2 that 21:02:31

18 would have emitted some limited amount of 21:02:36

19 information about an app using users' friends. 21:02:40

20 For example, their comments on my photos 21:02:45

21 or limited information about them in order to 21:02:48

22 render a taggable -- a "tagging" user type ahead, 21:02:51

23 for example. 21:03:01

24 So, in this context, let me play back to 21:03:01

25 you -- I want to make sure I'm understanding your 21:03:04

Page 186

CONFIDENTIAL

1 question correctly. 21:03:06

2 You are specifically referring to 21:03:09

3 permissions or behaviors that were no longer 21:03:10

4 available in Version 2 of the API, and you're 21:03:14

5 interested in applications that continued to have 21:03:17

6 access to the behaviors in API Version 1 after they 21:03:22

7 were no longer available to a nonwhitelisted 21:03:28

8 developer. 21:03:31

9 Do I have that correct? 21:03:32

10 Q. Correct. 21:03:34

11 A. Okay. Cool. 21:03:34

12 So having talked to people, the -- the -- 21:03:42

13 my understanding of how these decisions were -- how 21:03:48

14 these discussions happened is that there were a 21:03:54

15 number of developers who had been unable to update 21:03:58

16 their apps in time for the public API deprecation, 21:04:05

17 or that they -- that their use case -- they 21:04:11

18 required more time to migrate than was available 21:04:14

19 to -- to regular developers. 21:04:17

20 And so there were conversations had about 21:04:20

21 whether or not some of these applications should be 21:04:23

22 granted additional time to -- to migrate from the 21:04:27

23 API Version 1 behavior to the standard API 21:04:34

24 Version 2 behavior. 21:04:37

25 Q. And were any other considerations relied 21:04:40

Page 187

CONFIDENTIAL

1 on by Facebook when determining whether to 21:04:47

2 whitelist an app? 21:04:49

3 A. Again, can we -- specifically for -- 21:04:53

4 for -- continued access to the API of V1 behavior 21:04:56

5 and permissions associated with API V1? 21:05:02

6 Q. Right. 21:05:06

7 A. My understanding was that the rationale 21:05:12

8 was based on whether or not the user experience 21:05:15

9 would be broken if the deprecation timeline was 21:05:17

10 followed or whether or not there would be other 21:05:23

11 risks for the developer of the deprecation being 21:05:28

12 enforced on the general time frame. 21:05:34

13 So those -- primarily, it was about 21:05:38

14 developers needing more time to migrate because, if 21:05:42

15 they -- if the enforcement and deprecations 21:05:45

16 happened on that publicly available timeline, there 21:05:49

17 would be negative impacts primarily for the user 21:05:52

18 experience of the people using the app -- 21:05:54

19 Q. And you -- sorry. Go ahead. 21:05:57

20 A. No, go on. 21:05:59

21 Q. You mentioned other risks for the 21:06:02

22 developer. 21:06:04

23 What were the other risks? 21:06:04

24 A. So one I recall was that there was an 21:06:07

25 application providing compliance services to people 21:06:17

Page 188

CONFIDENTIAL

1 in the financial and insurance industry, and their 21:06:21
2 customers would -- were still using their 21:06:25
3 application in a certain way, and they needed more 21:06:31
4 time to train their customers to not use the 21:06:34
5 application in a certain way because the 21:06:39
6 functionality they were relying upon would become 21:06:44
7 unavailable when the API deprecations were applied 21:06:47
8 to them. 21:06:54

9 Q. And what you described were considerations 21:06:56
10 taken into account vis-à-vis developers. 21:07:01

11 But were there different considerations 21:07:05
12 taken into account on whether to grant Facebook 21:07:06
13 partners with continued access to publicly 21:07:10
14 deprecated permissions? 21:07:13

15 A. Sorry. Say that again? 21:07:17

16 Q. So you indicated that the -- the -- there 21:07:20
17 was extensions provided so apps could migrate to 21:07:23
18 the new platform, and you spoke about that for a 21:07:26
19 minute. 21:07:31

20 But I'm wondering if there were other 21:07:31
21 considerations that were taken into account when 21:07:33
22 discussing partners in particular and whether they 21:07:35
23 should be provided continued access to publicly 21:07:39
24 deprecated permissions. 21:07:42

25 A. My understanding is that there were some 21:07:46

Page 189

CONFIDENTIAL

1 contractual agreements that specified a longer 21:07:48
2 deprecation window than was available to -- than 21:07:54
3 was offered to regular developers; and, as such, 21:07:58
4 it's possible that some of the extensions to the 21:08:04
5 deprecations were granted on that basis. 21:08:11

6 Q. And were there any other bases that 21:08:14
7 Facebook had for providing continued access to 21:08:17
8 publicly deprecated permissions to partners? 21:08:20

9 A. Can you define again what you mean by 21:08:24
10 "partners" here? 'Cause all partners are 21:08:25
11 developers in this context. 21:08:28

12 Q. I mean the entities that have been 21:08:31
13 described by Facebook as "integration partners" 21:08:33
14 or -- there are a variety of other categories of 21:08:36
15 partner that Facebook uses. In fact, looking at 21:08:41
16 your notes, you have "integration partners, 21:08:44
17 business integrations, media integrations, search 21:08:47
18 integrations." 21:08:49

19 So with regard to any of those categories, 21:08:51
20 were there other considerations taken into account 21:08:54
21 by Facebook when deciding whether to provide 21:08:57
22 continued access to the publicly deprecated 21:09:00
23 permissions? 21:09:02

24 A. So I think what's important to understand 21:09:04
25 here is that -- let's take integration partners, 21:09:06

CONFIDENTIAL

1 for example. 21:09:10

2 They had -- they had always had access to 21:09:11

3 some permission -- some APIs that were not 21:09:16

4 available to regular developers because they were 21:09:22

5 rebuilding a Facebook replacement client experience 21:09:24

6 on their devices. 21:09:28

7 So "integration partners" as has been, you 21:09:30

8 know, defined in the -- in the documents, were 21:09:35

9 already on several whitelists in order to provide 21:09:38

10 the experience that they offered to users. 21:09:46

11 So that's my understanding of how 21:09:54

12 integration partners continued to have access to 21:09:56

13 the -- the private APIs and behaviors they had 21:10:00

14 always had access to that were not available to 21:10:04

15 regular developers. 21:10:07

16 Q. Okay. And, again, I want to make sure I'm 21:10:09

17 using the right terminology, and I'm talking about 21:10:13

18 continued access to friend data. 21:10:16

19 So you've just described the continued 21:10:17

20 access that integration partners had to friend 21:10:19

21 data. 21:10:22

22 Were there considerations that Facebook 21:10:22

23 took into account when deciding whether the other 21:10:24

24 types of partners that we just went through had 21:10:26

25 continued access to friend data? 21:10:29

Page 191

CONFIDENTIAL

1 A. My understanding from talking to the 21:10:35
2 people involved in this at the time, plus my own 21:10:37
3 experience, is that the extensions granted to 21:10:40
4 applications to access API Version 1 and the friend 21:10:46
5 permissions was limited to cases where the user 21:10:51
6 experience would be significantly degraded if they 21:10:54
7 weren't given extra time or there was some form of 21:10:57
8 legal and regulatory risk to the partner if the 21:11:02
9 extension was not granted for a period of time. 21:11:05

10 But remember that there -- you know, there 21:11:09
11 were other reasons to -- there were other 21:11:11
12 deprecations and changes in the API behavior that 21:11:15
13 were not related to the deprecation of the friend 21:11:18
14 permissions. I think that's really important to 21:11:20
15 understand. 21:11:22

16 Q. Right. And I perhaps led us astray with 21:11:23
17 the terminology I was using. 21:11:26

18 And, really, what I'm asking -- and you 21:11:28
19 can tell me if it changes any of your answers -- 21:11:30
20 but I'm looking for the reasons Facebook had to 21:11:33
21 provide continued access to friend data by anyone 21:11:36
22 after the transition to Version 2. 21:11:39

23 And we've talked about apps, and we've 21:11:41
24 talked about business partner -- or integration 21:11:43
25 partners and business integrations. 21:11:47

Page 192

CONFIDENTIAL

1 And so just more broadly put, have you 21:11:51
2 given me the full list of reasons that Facebook 21:11:53
3 used when deciding whether to provide continued 21:11:58
4 access to friend data after the transition to 21:12:00
5 Version 2? 21:12:06

6 A. So I provided -- friend data in 21:12:08
7 Version 2 -- like, again, I think it's important to 21:12:13
8 separate these things. Right? 21:12:20

9 You're asking a compound question that's, 21:12:23
10 like, somewhat impossible to answer with -- given 21:12:25
11 your definition of "friend data" and given the 21:12:30
12 variety of different applications we're talking 21:12:32
13 about here and the complexity of the whitelists -- 21:12:35
14 the various whitelists that these apps were on. 21:12:37

15 So, like, I think your question is hard to 21:12:41
16 answer in -- in simple terms given your definition 21:12:44
17 of "friend data." 21:12:49

18 Q. And you're saying that because my 21:12:53
19 definition includes the types of data that's 21:12:54
20 provided with regard to APIs other than the friends 21:12:58
21 permissions specifically and includes groups and 21:13:02
22 events and social context and all of that, or is 21:13:04
23 there some other complication? 21:13:08

24 A. That's primarily the complication. Like, 21:13:10
25 integration partners, the primary use case there is 21:13:12

Page 193

CONFIDENTIAL

1 that these are experiences that are designed to 21:13:21
2 replicate the Facebook experience on another mobile 21:13:29
3 device platform, set-top box, or so on. 21:13:33

4 And those folks would have access to -- 21:13:39
5 always had access to information that wasn't 21:13:45
6 available via the -- via the standard APIs. So 21:13:46
7 that's one class of things. 21:13:51

8 Then there is the general deprecation -- 21:13:56
9 the general changes -- the whole package of changes 21:14:01
10 from Version 1 to Version 2, which included the 21:14:04
11 deprecation of the friend permissions, a number of 21:14:07
12 other changes, including app-scoped user IDs and so 21:14:10
13 on. 21:14:15

14 So in terms of granting extensions to the 21:14:15
15 API Version 1 to Version 2 transition, from talking 21:14:20
16 about all of -- from talking to all of the people 21:14:24
17 involved to the -- as many people as I could that 21:14:26
18 were involved at the time, the rationale for 21:14:29
19 granting an extension is that it was a belief that 21:14:33
20 the user experience would be severely degraded if 21:14:37
21 the app wasn't given extra time to migrate from API 21:14:44
22 Version 1 to Version 2. 21:14:48

23 Regular developers had a year. There were 21:14:51
24 some applications, it was determined, that would -- 21:14:54
25 would provide a broken user experience if they 21:14:57

Page 194

CONFIDENTIAL

1 weren't given more time to upgrade. 21:14:59

2 And that was the determination based on, 21:15:03

3 again, speaking to the people involved, the 21:15:06

4 degradation in the user experience that would 21:15:08

5 result, or whether or not there was risk around, 21:15:10

6 like, legal and regulatory use of the Platform that 21:15:17

7 required extra time to unwind. 21:15:23

8 That's my understanding of the -- the 21:15:27

9 reasons why some applications were granted 21:15:29

10 additional time to migrate from Version 1 to 21:15:33

11 Version 2. 21:15:36

12 Q. And so those are all of the reasons that 21:15:38

13 Facebook had for providing continued access to 21:15:40

14 friend data for apps and partners after the 21:15:45

15 transition to Version 2. 21:15:51

16 MR. BLUME: Objection to form. 21:15:54

17 THE WITNESS: The answer I just gave was 21:15:55

18 in -- in two parts. 21:15:58

19 Part one is: Integration partners who had 21:16:01

20 built experiences that were on unusual devices, 21:16:06

21 operating systems, and set-top boxes and so on that 21:16:13

22 required, in order to function, always, permissions 21:16:16

23 which -- APIs that were not generally available. 21:16:22

24 The use of those APIs and permissions was 21:16:31

25 governed by contracts, typically. That's what 21:16:34

Page 195

CONFIDENTIAL

1 determined an integration partner, and they were 21:16:37
2 considered as operating on a different set of 21:16:40
3 permissions and APIs than the public API surface 21:16:46
4 area. 21:16:51

5 The second part of your question was 21:16:51
6 determining extensions to Version-- the Version 1 21:16:53
7 to Version 2 deprecation timeline where Version 1 21:16:57
8 included friends permissions and Version 2 did not 21:17:01
9 include the friends permissions. 21:17:06

10 And my understanding from talking to the 21:17:08
11 people involved is that the reason for granting 21:17:11
12 extensions to the standard Version 1 deprecation 21:17:14
13 window was to do with degradation of the user 21:17:17
14 experience and/or a few cases where the use of the 21:17:21
15 API was involved in compliance use cases. 21:17:30

16 I -- it's possible that there are other 21:17:35
17 reasons, but having talked to people and reviewed 21:17:38
18 the documents in this case, it's consistent with 21:17:43
19 that understanding as -- as referring to the friend 21:17:46
20 permissions deprecations. 21:17:48

21 BY MR. LOESER: 21:17:52

22 Q. And, again, I just want to -- trying to 21:17:52
23 make a record and make the record clear, and I'm 21:17:54
24 trying to understand every type of entity -- call 21:17:57
25 it a partner, call it a developer, call it an 21:18:01

Page 196

CONFIDENTIAL

1 app -- that continued to have access to friend data 21:18:04
2 after the transition from Version 1 to Version 2. 21:18:07
3 And you have described a couple different 21:18:10
4 types of entities. You've described apps and 21:18:12
5 business integrations, and you've described 21:18:15
6 extensions that were provided to some; and for 21:18:19
7 integrations, access that existed before and 21:18:23
8 existed after. 21:18:26
9 And what I'm trying to pin down is, is 21:18:27
10 there any other category of third party that 21:18:30
11 continued to have access to friend data after the 21:18:36
12 transition to Version 2? 21:18:39
13 Are there any other reasons that Facebook 21:18:42
14 had for providing continued access to those 21:18:46
15 categories? 21:18:48
16 MR. BLUME: Objection. Form. 21:18:49
17 THE WITNESS: So I -- it -- I think 21:18:53
18 we're -- you're mixing up here the friend 21:18:55
19 permissions, right, and the permissions that were 21:18:59
20 used in the API to govern access to the data 21:19:02
21 exposed via those permissions from friends data in 21:19:07
22 the more general sense that you defined it earlier 21:19:13
23 in this -- when we discussed earlier in this 21:19:17
24 testimony. 21:19:20
25 Like, it's -- I'm -- 21:19:20

Page 197

CONFIDENTIAL

1 BY MR. LOESER: 21:19:23

2 Q. Let's go back. Let me make it easier. 21:19:23

3 Let's put that aside for a moment, the 21:19:25

4 other APIs that are not categorized as friend 21:19:27

5 permissions, and just talk about friends; the APIs 21:19:30

6 that were on that list that were deprecated. 21:19:34

7 Other than the -- the third parties you've 21:19:37

8 already described, are there any other categories 21:19:40

9 of partner or developer or third party at all that 21:19:42

10 had continued access to those permissions after the 21:19:48

11 transition? 21:19:52

12 And if so -- let's stop with that. Let's 21:19:53

13 start with that half of the question. 21:19:58

14 A. Okay. So my understanding is that the 21:20:01

15 ability of applications to request the friend 21:20:04

16 permissions from users, which is, again, how this 21:20:08

17 works, right? We're talking specifically about the 21:20:11

18 friend permissions. These are things that apps 21:20:14

19 could request users to grant to the application. 21:20:17

20 My understanding is that the reasons for 21:20:22

21 continuing to allow apps to request the friend 21:20:26

22 permissions from users was limited to applications 21:20:31

23 that needed additional time to -- to migrate. 21:20:38

24 The -- and we've gone through the reasons for that. 21:20:42

25 Q. Okay. And there's -- and you also 21:20:50

Page 198

CONFIDENTIAL

1 described business integrations, and you gave the 21:20:52
2 reason for that. 21:20:54

3 And I just want to make sure that there's 21:20:55
4 not any other category of partner, according to 21:20:58
5 Facebook, that continued to have access to those 21:21:00
6 permissions that were whitelisted. 21:21:03

7 A. So when apps were whitelisted -- if an app 21:21:08
8 was whitelisted to continue to have access to 21:21:12
9 Version 1, then it could continue to request those 21:21:15
10 permissions from some users. 21:21:18

11 So by being granted an exception -- an 21:21:21
12 extension to the deprecation timeline window, 21:21:25
13 applications that were whitelisted to continue to 21:21:30
14 have access to Version 1 could continue to access 21:21:33
15 the friend -- could continue to request the friends 21:21:37
16 permissions from users until that access was -- was 21:21:39
17 removed. 21:21:43

18 And my understanding is that the reason 21:21:45
19 for that was to give those apps extra time to 21:21:50
20 migrate to prevent degradation to the user 21:21:54
21 experience. 21:21:58

22 There are apps on -- I've been through the 21:22:00
23 list of applications that were granted an 21:22:03
24 extension, and a good example of that -- an 21:22:05
25 application in that category was, like, the -- an 21:22:14

Page 199

CONFIDENTIAL

1 integration with car manufacturers and their head 21:22:18
2 unit so you could access some kind of Facebook 21:22:22
3 experience inside your car. 21:22:25

4 It's very hard to update the software on 21:22:27
5 those devices, and they needed more time. 21:22:29

6 So that's my understanding of, like, the 21:22:37
7 reason why extensions were granted; to give more -- 21:22:40
8 developers more time to upgrade, given the changes 21:22:44
9 in the API that would affect them -- not just the 21:22:47
10 friends permissions, but other changes between 21:22:50
11 Version 1 and Version 2, and that's why the 21:22:53
12 extensions were granted. 21:22:57

13 Q. I'm not trying to get you to repeat the 21:23:04
14 same testimony. I am simply trying to make sure 21:23:06
15 that we've exhausted Facebook's reasons for 21:23:09
16 whitelisting and the categories of apps or partners 21:23:12
17 that were whitelisted. 21:23:16

18 And so there's nothing else to add to that 21:23:18
19 from Facebook's perspective? 21:23:20

20 A. So the -- in terms of, like, whitelisting 21:23:24
21 extensions to Version 1, there are other reasons 21:23:27
22 why an app might be whitelisted, but that's 21:23:33
23 generally not to do with their use of the friend 21:23:37
24 permissions. 21:23:39

25 Q. Was it something to do with their use of 21:23:42

Page 200

CONFIDENTIAL

1 other deprecated permissions? 21:23:44

2 A. Other changes in behavior from Version 1 21:23:47

3 to Version 2. For example, app-scoped user IDs. 21:23:49

4 Big change to how the Facebook Developer Platform 21:23:55

5 operated. As I say, there's a whole number of 21:23:58

6 changes between Version 1 and Version 2. 21:24:02

7 Your question was about friends 21:24:04

8 permissions, and there are other reasons why some 21:24:06

9 apps were granted an extension. And my 21:24:09

10 understanding is that, you know, the reasons for 21:24:12

11 granting an extension to the friend permissions is 21:24:16

12 because of a user experience degradation and 21:24:19

13 striking a balance of giving more time -- those 21:24:23

14 developers more time to update their use of the 21:24:26

15 Platform or cases where the use of the Platform was 21:24:29

16 related to -- where the friend permissions were 21:24:33

17 used in the context of, like, regulated industries. 21:24:39

18 As I say, there are a number of developers 21:24:44

19 also whitelisted for continued access to Version 1 21:24:46

20 because of their use of other -- because of 21:24:50

21 their -- because of them being affected by other 21:24:53

22 changes in the API between Version 1 and Version 2. 21:24:55

23 MR. LOESER: Okay. Mr. Cross, we're at 21:25:07

24 now 9:25 your time, and I want to be sensitive to 21:25:09

25 your schedule. 21:25:12

Page 201

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

--o0o--

I declare under penalty of perjury that the foregoing is true and correct. Subscribed at _____, California, this ____ day of _____ 2022.

SIMON CROSS

CONFIDENTIAL

CERTIFICATE OF REPORTER

I, HOLLY THUMAN, a Certified Shorthand Reporter, hereby certify that the witness in the foregoing deposition was by me duly sworn to tell the truth, the whole truth, and nothing but the truth in the within-entitled cause; that said deposition was taken down in shorthand by me, a disinterested person, at the time and place therein stated; and that the testimony of said witness was thereafter reduced to typewriting by computer, to the best of my ability via remote videoconferencing, under my direction and supervision;

That before completion of the deposition review of the transcript [] was [X] was not requested/offered. If requested, any changes made by the deponent (and provided to the reporter) during the period allowed are appended hereto.

I further certify that I am not of counsel or attorney for either or any of the parties to the said deposition, nor in any way interested in the event of this cause, and that I am not related to any of the parties thereto.

DATED: May 12, 2022



HOLLY THUMAN, CSR

DEREK W. LOESER, ESQ.

dloeser@kellerrohrback.com

May 12, 2022

IN RE: FACEBOOK, INC., CONSUMER PRIVACY USER PROFILE LITIGATION

MAY 9, 2022, SIMON CROSS, JOB NO. 5210141

The above-referenced transcript has been
completed by Veritext Legal Solutions and
review of the transcript is being handled as follows:

___ Per CA State Code (CCP 2025.520 (a)-(e)) - Contact Veritext
to schedule a time to review the original transcript at
a Veritext office.

___ Per CA State Code (CCP 2025.520 (a)-(e)) - Locked .PDF
Transcript - The witness should review the transcript and
make any necessary corrections on the errata pages included
below, notating the page and line number of the corrections.
The witness should then sign and date the errata and penalty
of perjury pages and return the completed pages to all
appearing counsel within the period of time determined at
the deposition or provided by the Code of Civil Procedure.

___ Waiving the CA Code of Civil Procedure per Stipulation of
Counsel - Original transcript to be released for signature
as determined at the deposition.

___ Signature Waived - Reading & Signature was waived at the
time of the deposition.

Page 205

CONFIDENTIAL

1 ___ Federal R&S Requested (FRCP 30(e)(1)(B)) - Locked .PDF
2 Transcript - The witness should review the transcript and
3 make any necessary corrections on the errata pages included
4 below, notating the page and line number of the corrections.
5 The witness should then sign and date the errata and penalty
6 of perjury pages and return the completed pages to all
7 appearing counsel within the period of time determined at
8 the deposition or provided by the Federal Rules.
9 _X_Federal R&S Not Requested - Reading & Signature was not
10 requested before the completion of the deposition.

Page 206

1

IN RE: FACEBOOK, INC., CONSUMER PRIVACY USER PROFILE LITIGATION

2

SIMON CROSS, JOB NO. 5210141

3

E R R A T A S H E E T

4

PAGE_____ LINE_____ CHANGE_____

5

6

REASON_____

7

PAGE_____ LINE_____ CHANGE_____

8

9

REASON_____

10

PAGE_____ LINE_____ CHANGE_____

11

12

REASON_____

13

PAGE_____ LINE_____ CHANGE_____

14

15

REASON_____

16

PAGE_____ LINE_____ CHANGE_____

17

18

REASON_____

19

PAGE_____ LINE_____ CHANGE_____

20

21

REASON_____

22

23

24

WITNESS

Date

25

CONFIDENTIAL

[& - 4200]

| | | | |
|--|--------------------------------|---------------------------|--------------------------|
| & | 125 4:12 | 2007 21:21 32:22 | 3 |
| & 2:18 3:4,7,10,14 5:25 205:23 206:9 | 12th 2:19 | 39:18 70:18 71:20 | 3 126:11 |
| 0 | 13 20:6,8,9,10 63:10 | 142:6 | 30 1:18 15:16 |
| 0 117:5 137:3,7 | 13,000 131:7 | 2007/2008 154:12 | 19:22 46:16,18 |
| 00198455 4:9 | 13,350 131:4 | 2008 167:10 | 76:7 78:18 79:3,7 |
| 00200051 4:16 | 138 79:6,19 | 2010 13:10,21 40:3 | 80:13 121:12 |
| 174:3 | 138s 79:12 | 40:10,17,21,22 | 125:22 126:2 |
| 01685319.ppt 4:13 | 138x 79:11 | 41:5 48:21 51:14 | 168:13,14,17 |
| 01685319.ppt. | 15 184:17,21,25 | 88:7,9,12 112:5,12 | 206:1 |
| 125:8 | 185:6 | 154:15 | 30,000 42:8,12 |
| 02140404 4:11 | 153 4:14 | 2010s 42:23 | 3000 3:15 |
| 02145706 4:18 | 1600 2:19 | 2011 170:3,6 | 30th 46:3,4 |
| 02843 1:8 | 17 117:6,6 | 2012 33:1 45:21 | 31 4:16 132:7,12 |
| 1 | 173 4:16 | 46:7 | 174:6 |
| 1 40:5,18 41:6,9,17 | 176 4:17 | 2013 4:8,10,16 | 3200 2:11 |
| 42:1 73:10 83:7 | 18 1:8 4:22 | 45:21 75:20 82:20 | 330 4:22 18:18,19 |
| 126:8 128:9 137:3 | 1801 3:5 | 92:10 151:3 174:6 | 19:5,6 63:9 |
| 137:7 163:12,15 | 1881 3:8 | 2014 13:22,23 41:8 | 331 75:2 |
| 168:16 174:17,19 | 2 | 46:4,16 48:22 | 332 4:8 19:4,11 |
| 177:5,13 186:9 | 2 41:8,10,17,21 | 84:11 91:7 125:22 | 75:3,4,5 |
| 187:6,23 192:4 | 42:1 43:5,10,12 | 126:3 163:2 | 333 4:10 92:4,5 |
| 194:10,15,22 | 45:25 46:2,9,10,15 | 164:17 168:14 | 334 4:12 125:5,7 |
| 195:10 196:6,7,12 | 73:17 118:12,14 | 177:20 178:10 | 335 4:14 153:20 |
| 197:2 199:9,14 | 121:1,4,10 124:15 | 2015 13:23 46:3,14 | 336 4:16 173:24 |
| 200:11,21 201:2,6 | 124:17,22 125:1 | 46:18 115:3 116:4 | 174:2 |
| 201:19,22 206:1 | 126:10 160:21 | 117:19 121:12 | 337 4:17 176:17 |
| 1.0 40:7 | 163:13,15 176:22 | 168:13,18 | 177:6 |
| 1.1 39:22 40:7 | 177:2,2,4,14 180:6 | 2016 14:1 | 35,000 78:19,22 |
| 1.2 39:22 | 180:20 182:2 | 2018 14:1,4 29:9 | 79:1 |
| 1/24/2014 4:13 | 186:10,17 187:4 | 29:14 113:18 | 35k 78:18 |
| 125:16 131:3 | 187:24 192:22 | 151:3 | 36 16:17 |
| 10 176:16 184:21 | 193:5,7 194:10,15 | 2021 14:4,6 | 3:49 2:4 5:2,7 |
| 100 116:2,14 | 194:22 195:11,15 | 2022 1:20 2:5 5:1 | 4 |
| 11 115:3 117:19 | 196:7,8 197:2,12 | 5:7 203:5 204:23 | 4 75:2 |
| 115 4:22 | 200:11 201:3,6,22 | 205:3,5 | 4,000 78:18 |
| 11978 204:24 | 2.0 181:23 | 2025.520 205:9,12 | 4,82m 78:18 |
| 12 204:23 205:3 | 2.0. 181:10 | 2100 3:11 | 4.82 79:3 |
| 1201 2:11 | 20 184:17 | 27 4:8 75:20 | 414 4:11 |
| | 2001 3:11 | 2843 1:7 | 4200 3:5 |

CONFIDENTIAL

[45 - adele]

| | | | |
|----------------------------|--------------------------|--------------------|---------------------------|
| 45 15:16 | 92 4:10 | 89:4,7,18 98:12,23 | accessed 26:9 38:4 |
| 457 4:9 | 94607 2:19 | 99:21 101:2,13,18 | 47:6 53:24 55:13 |
| 5 | 98 4:22 114:24 | 101:22 102:5,7,11 | accessible 74:13 |
| 5 92:2 177:20 | 115:6,9,16 | 103:4,11,15,23 | 103:7 |
| 178:9 | 98101 2:12 | 104:3,5,7,9,10,23 | accessing 30:20 |
| 5210141 1:25 | 9:00 184:14 | 105:1,4,21 107:12 | 59:21,21 117:10 |
| 205:5 207:2 | 9:25 201:24 | 108:10 110:1,6,21 | 117:23 120:5 |
| 555 2:19 | 202:13,14 | 111:18 113:5 | accommodate |
| 5:04 61:2,3 | a | 118:22 119:16 | 8:23 12:8 |
| 5:22 61:3,6 | ability 9:21,25 | 120:1,10,15,20 | account 189:10,12 |
| 6 | 22:21 26:10 31:20 | 121:2,8,17 123:5 | 189:21 190:20 |
| 6 1:18 4:4 19:22 | 38:22 44:5 56:21 | 123:14 124:5,19 | 191:23 |
| 20:11,17 63:14 | 71:11 81:11 90:13 | 137:17,23 138:11 | accrued 96:24 |
| 64:23 65:20 67:16 | 94:2 118:21 | 139:7 140:24 | accurate 32:7 |
| 68:5 128:16 151:8 | 119:15 137:23 | 141:2 142:12 | 145:9 177:1 |
| 152:23 155:7,8,15 | 159:2 176:11 | 148:16 149:4,13 | accurately 100:16 |
| 643 7:4,4,13 | 179:10 198:15 | 149:13 157:2,9,15 | 109:22 183:17,18 |
| 6834 1:24 | 204:10 | 157:25 159:7 | acquired 77:12 |
| 6:42 114:18,19 | able 45:17 57:9 | 160:11 161:21 | actions 1:9 183:11 |
| 7 | 68:21 71:3 89:9 | 162:12,22 163:6 | active 36:7 51:15 |
| 7 20:12,17 152:19 | 102:23 118:21 | 163:17 164:16 | 51:17,21 78:21,22 |
| 155:1,4,9,13,19,22 | 175:23 183:12,25 | 166:21 167:17,20 | 79:1,20 81:21 |
| 156:4,9 | 184:4 | 168:4,7,15,20,21 | 88:4 112:2 |
| 711 4:18 | access 22:21 23:1 | 169:18,22 170:17 | actively 11:3 |
| 75 4:8 | 26:11 27:13 30:22 | 170:18,25 171:5 | activity 120:14 |
| 75210-2911 3:11 | 31:1,21 32:2,12,18 | 171:16,18 172:2,6 | 127:10 140:11 |
| 77002 3:15 | 33:1,5 34:6,11,12 | 173:7,14,20 | acuity 44:14 |
| 7:00 114:19,21 | 35:2,4,11,13 38:6 | 179:10,18,21 | ad 128:7 136:4 |
| 7:58 153:7,8 | 38:8 44:5 47:3,10 | 180:10,14 182:6,8 | 144:5 |
| 8 | 47:22 48:2,5 49:5 | 185:13,21,25 | adaniel 2:14 |
| 8 125:4 | 49:15 50:5,6,8 | 186:4 187:6 188:4 | add 200:18 |
| 80220 3:5 | 51:9 53:5 54:5,23 | 189:13,23 190:7 | added 112:5 158:9 |
| 811 3:15 | 56:21,22 57:2,8,11 | 190:22 191:2,12 | 183:9 |
| 8:12 153:8,10 | 58:14,18 61:23 | 191:14,18,20,25 | addition 61:21 |
| 9 | 62:10,15 63:4 | 192:4,21 193:4 | additional 172:7 |
| 9 1:20 2:5 4:10 5:1 | 65:15 68:21 69:1 | 194:4,5 195:13 | 187:22 195:10 |
| 5:7 92:10 173:23 | 69:10,12,14,16 | 197:1,7,11,14,20 | 198:23 |
| 205:5 | 70:24 71:11 72:14 | 198:10 199:5,8,14 | address 65:12 |
| | 74:11,18 83:2,5,7 | 199:14,16 200:2 | addressed 46:8 |
| | 84:2,16 85:23,24 | 201:19 | adele 2:13 5:18 |
| | 87:7,16,23 88:9,14 | | 6:17 |

CONFIDENTIAL

[admit - api]

| | | | |
|---------------------------|---------------------------|--------------------------|-----------------------|
| admit 76:9 | 74:17 84:4 86:13 | 150:8,14,18 151:4 | answers 167:1 |
| ads 135:19,23 | 95:22 97:20 100:9 | 151:24 152:7,9,10 | 192:19 |
| 136:1,1,2,3 143:7 | 101:13,21 102:4 | analytica 7:11 | anybody 11:4 |
| advance 16:15 | 102:10 103:10,22 | analyze 123:25 | 155:12 |
| 17:20 167:24 | 104:8,10 105:3,15 | 124:8 157:4 | anymore 135:11 |
| advertisements | 105:23 111:17 | analyzed 148:14 | anyway 185:2 |
| 138:13 | 124:20,22 138:20 | 149:2 | apart 33:16 |
| advertising 127:15 | 141:23 166:11 | analyzing 180:13 | api 22:22 23:2 |
| 127:17 128:3,6 | 179:18,21 180:9 | android 24:17,20 | 25:5,6 26:9,13,14 |
| 138:21 | 180:10 204:15 | announced 39:22 | 29:4 30:8,11,14,15 |
| advocate 13:19 | allowing 127:8 | 119:2,4,6 125:21 | 30:16 31:8,10 |
| affect 200:9 | 137:17 148:16 | 126:2 131:23 | 33:7,25 34:6,10,12 |
| affiliated 23:15 | 149:12 | 180:20 | 34:16,17,21 35:9 |
| afraid 85:2 | allows 51:19 54:9 | announcing | 35:13,18,19,20 |
| afternoon 61:9,10 | 87:4 | 169:12 | 36:1,4,6,11,15,16 |
| ago 86:12 119:25 | alongside 51:13 | answer 8:3,6,9,16 | 36:23 37:11,16,20 |
| 157:7 | alter 43:16 | 8:17 11:16,17 | 37:21,25 38:2,3,6 |
| agree 67:25 72:7 | alternative 159:24 | 12:1 13:1 24:5 | 38:13,18 39:1,3,7 |
| 138:10 165:25 | 164:23 | 25:16 27:23 32:6 | 39:8,10,16,19,22 |
| agreed 75:18 | alto 3:8 | 32:24 33:19 36:2 | 40:2,3,4,7,10,11 |
| agreements 190:1 | altogether 83:23 | 39:25 51:23 56:11 | 40:14,16,25 41:3,4 |
| ahead 8:17 14:15 | 84:22 85:19 | 58:5,17 59:3 | 41:6,8,12,13,15,21 |
| 59:11 95:1 101:5 | ambitions 170:12 | 66:23 68:12 69:3 | 43:2,5,6,7,10,13 |
| 106:1,2 149:23 | amended 19:20 | 74:1 82:18,19 | 43:17,21 45:25 |
| 153:1 186:22 | amit 15:8 | 84:24 85:11 92:22 | 46:2,9,10,15,17 |
| 188:19 | amount 43:12,16 | 95:7,9,13 100:16 | 47:7 48:6 50:6,7 |
| air 93:23 | 43:20 44:7,20 | 103:3 109:4,18,22 | 51:5,13 53:19,23 |
| alex 154:3,17 | 45:14 72:8 74:21 | 110:8,19,23 | 54:22 57:18 59:22 |
| align 22:10 | 78:8,14 96:24 | 122:11 132:15,24 | 60:13 62:5,6,7,8 |
| allison 4:8 15:7 | 97:7,11 128:13 | 132:25 133:6,18 | 62:15,18,24,25 |
| 75:19 | 182:14,16 186:18 | 139:16,23 140:14 | 69:4 72:17,18 |
| allow 26:15 34:6 | amounts 15:10 | 145:3,9,11,13,25 | 73:10,17 76:6 |
| 34:10 36:25 43:6 | analyses 146:17 | 146:1,22 149:18 | 77:5,9 78:6,7,11 |
| 51:23,23 70:18 | analysis 99:23 | 150:23 151:18 | 78:12,15 80:12,21 |
| 85:24 86:1 101:1 | 131:25 134:23 | 156:6 162:15 | 81:2,8,12,20 82:13 |
| 104:3,5,23 140:1 | 142:17 143:4 | 163:10 164:7,8 | 83:6 87:19 99:3 |
| 149:4 152:4 | 144:18 145:14 | 175:5,5 183:12,25 | 102:4 103:2,3,14 |
| 175:19 183:10 | 146:3,7,10,13,22 | 184:4,12 186:13 | 103:20,22 104:1,2 |
| 198:21 | 146:25 147:23 | 193:10,16 195:17 | 104:5,7,8,14,17,21 |
| allowed 23:16 | 148:6,20,23,25 | answering 8:2 | 104:22 105:3,14 |
| 47:5,21 62:18 | 149:11,19,25 | 156:19 175:6 | 105:17,19,20,23 |

CONFIDENTIAL

[api - application]

| | | | |
|---|--|---|--|
| 106:23,23 107:5,9 107:11,13,15,23 108:8,10,12,15,22 108:25 109:2,6,8 109:11,17,19 110:1,3,6,10,12,13 111:11,12,14,20 112:21 113:9,17 114:9,9,11,13 118:11,13 119:6 119:13,14 120:4 120:25 121:3,9 122:1,15,23 123:4 123:7,9,10,20 124:15,17,22 125:1,1 141:19 142:8,8 157:4 158:11 159:24 160:7 163:12,13 163:14,15 164:5 164:15,19,24 166:4,16 167:4,5 167:16,22 168:8 168:16,17 176:22 177:2,4,5 180:6,18 181:16,18 182:11 182:16,19,22 183:7,21,22 184:5 184:7,11 185:24 186:9 187:4,6,16 187:23,23 188:4,5 189:7 192:4,12 194:15,21 196:3 196:15 197:20 200:9 201:22 apis 23:12 25:11 25:13,16,19,20,24 26:10 27:6,7,10,13 27:16 28:20 29:8 29:9 30:12,22 31:5,19,21 32:2,19 | 33:14,17,22 34:14 35:1,10,24 36:7,9 36:19 38:7,8 39:2 47:4,8,10,22 48:2 49:6 53:11 54:6 54:10 58:15 62:9 63:21 68:25 69:6 69:9,12,21,21 70:7 72:8,11,14,16,20 72:24,25 73:5,7 82:24 84:17 98:16 99:5 102:2 104:3 104:23,25 109:20 110:11,21 111:10 111:23 112:7 113:4,5,12,20,21 113:23 114:3 122:2,6,7,7,20,23 122:25 123:4,9,14 123:19 124:4,10 124:19 134:23 135:7 151:22 152:3 156:15,25 157:15,17 158:1 158:25 159:7 161:25 162:2,5,7,8 162:9,12,14,22 165:1,16,20 166:19 167:2 168:24 179:8 181:13 182:1,4,5,8 182:14,21 186:16 191:3,13 193:20 194:6 195:23,24 196:3 198:4,5 apologize 16:6 32:10 59:11 93:4 112:23 app 22:19,20,23 22:25 23:1 25:18 32:11 33:5 34:22 | 35:1,3,14 42:18,19 42:19 48:6,8 49:22,25 53:12 54:1,7,7,8,9,13,19 55:11 56:13,17,23 63:1 68:22 70:18 71:2 72:9 74:19 79:21,23,25 80:1,4 81:2,9,22 82:10 83:1,11,11,13,22 86:8,8,17,17,21,23 86:23,25 87:2,10 88:21 89:18,20,21 90:17 91:25 96:15 98:5 101:21 102:4 102:10,23 103:10 103:15,22 104:6 104:23 105:1,3,9 105:11,15,23,24 106:7,13 107:4,12 107:20,22 108:6,7 108:24 109:13 111:8,18 115:1,19 116:10 117:4,12 117:15,19 119:10 120:7,9,18 122:8,8 127:5 135:3,18,23 136:1,3,21 137:6 137:17,20,24 138:8,11,13,14 139:7,9,11,12,22 139:22 140:7,12 140:19,22,22 141:9,24 142:1,2,7 144:10 150:9 157:14 158:14,25 159:6 160:5,10,12 162:20 163:5,24 164:22 168:14 171:1 172:9 173:4 176:1 179:21 | 180:10,10 184:3 185:19 186:3,19 188:2,18 194:12 194:21 197:1 199:7 200:22 201:3 app's 159:2 179:10 186:1 appear 75:11 131:17 167:2 179:15 appearances 2:8,9 3:1,2 appearing 205:18 206:7 appears 79:2 114:25 134:13,23 135:2 177:11 181:23 appended 204:16 appendix 20:5 appetite 127:13 application 23:25 25:6 26:16 30:25 31:1 34:6,11,13,19 45:10 48:7 52:25 52:25 53:2,4,13 55:18 56:19,24 57:5,7,7,15 58:7 58:12,14 60:8,10 60:11,15,17 62:10 62:11,19 68:21,23 69:16 70:21,22,23 71:12 83:5,7,10 87:5,7,15,16,22,23 88:3,13,14,17,25 89:7,7,12,24 90:6 90:6,8,11 91:23 95:19,21 98:4 101:2 102:6,17 104:3,8,10,18 |
|---|--|---|--|

CONFIDENTIAL

[application - authorization]

| | | | |
|---|---|--|--|
| 107:9,17 108:2 117:17,18 118:1 118:22,23 119:19 120:2,4 121:4 124:17,23 128:15 140:13 141:1,2,6 142:9,10,16 158:9 159:18 163:1 164:2 165:7,9 166:4 168:19 169:7,22 173:20 176:13 182:13 188:25 189:3,5 198:19 199:25 applications 22:24 23:17 24:10 33:2 34:17 37:22 42:22 42:25 47:6 73:24 74:3,5,7,8,9,18,25 81:7 84:6,16 86:1 90:22 91:5,6 97:21 98:7 119:15 121:24 123:8 124:24 127:9,10 158:9,12 159:9,22 159:22 160:4,4 163:14 165:14 166:9,12 169:8,18 172:6,16 187:5,21 192:4 193:12 194:24 195:9 198:15,22 199:13 199:23 applied 157:23 189:7 applies 56:2 133:18 158:17 appreciate 13:6 19:17 37:8 46:22 69:8 70:8 110:18 122:12 123:12 | 184:23 approach 90:24 appropriate 10:22 apps 23:3,4,6,8,10 23:15,21 24:17,19 31:16 44:5 47:9 48:2 49:16 53:8 54:24 55:16 76:4 76:6 78:15 82:9 82:12,22 83:23 84:3,22,25 85:18 85:24 86:13,15 88:9 91:12 96:9 99:21 100:8,21 118:20 119:25 120:20 121:1,7,16 121:20 123:17 124:4,19 127:8,22 130:19 131:4,7 132:1,4,5,7,9,10 132:11,16,19,19 132:24 133:12,16 134:15,24 135:11 135:12,22 136:7 136:16 137:23 138:8 140:5 141:8 149:4,12,13 152:4 157:6 159:11 160:9,22 163:21 163:22 170:17,25 173:7 175:10,21 182:7 183:10 185:12 187:16 189:17 192:23 193:14 195:14 197:4 198:18,21 199:7,19,22 200:16 201:9 april 40:3,10,17 40:21 41:5,8 46:3 46:4,16,18 51:14 | 88:7,9,12 112:5,12 121:12 125:22 126:2 168:13,14 168:17 archibong 15:6 67:12 archive.org 65:12 area 60:20 65:23 66:21 84:2,14 125:1 127:18 196:4 ari 154:3,11 arm 12:20,21 aside 198:3 asked 17:7 23:7 29:3 65:17 67:5 70:11 73:24 101:7 101:14 132:23 134:4 153:25 asking 11:4 34:3 37:13 52:7 69:8 92:24 95:2 109:3 130:24 133:5 144:16,23 192:18 193:9 aspect 66:17 aspects 171:19 assembled 16:21 assert 150:12 assertion 80:14 assess 113:19 143:6,20 145:21 assessment 147:5 147:20 assessments 67:7 148:2 assist 11:13 associated 36:18 63:21 188:5 assume 8:10 32:11 129:11 | assumption 8:11 astray 192:16 attached 20:4 attempt 8:1 85:7 133:3 135:12 attempted 113:4 152:7 attempting 42:4 42:13 43:9,16 89:21 attempts 99:24 attend 10:20 62:12 attendance 62:16 62:17 attended 62:12 103:4 attendees 103:16 attending 62:11 62:19,25 103:12 103:13,19,24,24 attorney 2:12,13 2:14,16,20,21 3:6 3:9,12,13,16 8:14 204:18 attorney's 7:6 attorneys 14:19 15:19,21,23 16:14 16:20 audience 177:17 audit 76:5 auld 2:18 5:25 auth.log 26:15 author 129:16 130:13 133:2 134:1,3 135:13 178:10 authored 177:17 177:19,23 178:4 authorization 89:14 |
|---|---|--|--|

CONFIDENTIAL

[authorize - blackberry]

| | | | |
|--|---|--|--|
| authorize 58:18 70:21 83:5 87:12 87:15 118:22 128:14 authorized 21:6 34:7 35:3,10 58:10,14 60:1,3 69:15 87:22 89:24 102:5,16 109:13 111:8 117:17,18 137:19 141:1 182:12 authorizes 56:6 57:2 59:24 108:7 authorizing 71:3 140:13 automatically 176:9 available 27:24 28:1 29:10 30:17 31:16 33:2,5 36:1 36:9,10 37:22 43:13,17,21 44:3,8 44:21 45:15 46:3 53:23 56:17 57:23 57:25 68:1,4 70:6 74:21 78:9 83:13 83:25 84:5,7,9,10 85:15 89:12 90:21 97:9 104:13,14,19 108:14 110:15 112:11,17,20 113:21 114:4 119:18 122:16,25 124:4 129:4 135:11 139:13 140:10,11 141:3 141:11,19 146:4 147:16 159:8 160:12 162:7,10 163:12,13 164:1 | 167:6,12,19,25 172:15 177:4,5 178:17 180:18 181:10 182:3,21 185:20 186:17 187:4,7,18 188:16 190:2 191:4,14 194:6 195:23 avenue 2:11 3:11 average 78:19 131:11 aware 9:23 27:2 29:1 45:19 49:18 56:3 71:21 82:8 88:23 91:22 99:23 113:11,18 129:13 149:10,19 151:4 152:10 b b 1:18 19:22 155:23,23 206:1 back 37:4,7 44:16 61:5,11 63:9 70:3 87:17 106:9,14 114:20 127:11,22 151:8 153:9,16,24 154:25 157:18 159:17 181:8 182:9,19 186:12 186:24 198:2 202:7 bad 44:18 balance 45:8 201:13 base 36:20 37:1 51:22 110:2 160:3 based 32:15 67:15 90:17 110:5 129:17 137:9 138:23 139:16 141:22 143:10,11 | 143:13 151:17 155:20 156:8 163:24 175:8,24 179:9 188:8 195:2 bases 190:6 basic 7:17 22:6,12 22:18 46:21 basis 83:11 86:8 150:9,10 190:5 bates 75:12 125:8 174:2 bear 22:17 began 45:18,23 46:17,17 154:16 168:17 170:6 beginning 5:14 168:13,18 begins 178:18 behalf 5:21 6:1,3 20:16 95:13 107:6 122:8 141:20 142:8 behaved 35:21 108:15 110:14 111:24 184:9 behaves 161:13 behavior 31:23 32:8 33:7 43:7 95:20 108:12 109:5 110:4,10,11 112:7,9 158:10,10 158:19 159:24 160:7 161:12,15 164:24 165:4,5,11 165:11,14 166:16 167:22 169:20 173:10 175:15 187:23,24 188:4 192:12 201:2 behaviors 162:7 165:21,21 187:3,6 | 191:13 belief 194:19 believe 17:16 18:18 19:4 67:16 67:21,23 151:3 154:5 156:9,11 184:14 belonged 93:24,25 benefit 30:1 75:10 98:10 128:3 benefits 97:25 148:15 best 8:23 12:1 42:15 67:19 100:6 106:3 171:6 204:10 better 44:9,17,22 167:9 175:19 beyond 140:23 145:19 bfalaw.com 2:20 2:21 big 43:3 124:18 144:24 185:11 201:4 bill 178:11 billing 55:2 binder 16:21 binding 21:10 birthdays 93:13 bit 12:15 60:19 61:19 101:4 106:22 153:4 156:21 179:7 183:6 blackberry 56:13 56:16,16,20,24 57:5,16,17,20 58:7 58:10,12,13,21,24 59:2,4,6,19,24 60:1,3,7,8,10,12 |
|--|---|--|--|

CONFIDENTIAL

[blackberry - categories]

| | | | |
|--|---|--|--|
| 60:15,16,17 blackberry's 58:18 bleichmar 2:18 5:25 blizzard 174:6 block 85:17 86:21 87:5 blocks 87:4 blow 183:6 blowing 117:5 blume 3:6 5:20,20 12:3,10 16:2 17:13 19:4,10,16 37:9 60:19,24 94:23 95:1,2 112:13,23 113:1 115:8 138:17 142:22 145:1,19 146:6,18 147:17 148:18 175:2 195:16 197:16 bold 170:11 bottom 20:11 93:1 93:10 100:4 178:15 box 194:3 boxes 195:21 branded 52:19,20 56:13,17,23 57:5 57:14,15 58:2,6,22 58:24 60:16 break 8:22 9:1,7 33:21 60:22 112:14 114:7,14 152:21,25 153:2 184:19,20,21 breaking 42:17 112:14 bring 12:14 | brings 31:3 48:9 broad 185:10 broadcast 90:10 broaden 22:23 149:9 broadly 46:2 144:4 148:24 193:1 broken 188:9 194:25 browser 51:4 build 24:9 47:6 52:18 53:21 55:15 55:19 70:18,22 86:1 97:21 98:2 126:25 137:25 140:1 building 98:10 126:24 built 23:11 56:23 56:24 70:17 167:14 170:2 195:20 buongiorno 3:12 5:23 16:4 business 97:1 98:13 99:10,17 148:15 149:3 150:5 171:19 181:16 190:17 192:24,25 197:5 199:1 button 50:24 51:1 51:1 buy 56:16 136:3 | call 15:18,25 23:12 23:13 40:15 56:8 56:8 69:23 70:5 75:18 77:5,8 81:20 82:1 86:23 99:3 142:8 156:14 156:25 157:4 163:14,15 183:22 196:24,25,25 called 6:7 14:7 19:20 26:15 39:4 40:11 41:4 42:21 47:4 54:7 55:16 56:1 61:15 72:16 72:18 74:2,4 81:12 82:9 84:2 86:13 87:4 92:16 104:17 107:5,6 111:12,13 116:17 117:20 122:7 125:24 132:4 141:20 165:13 170:8,9,19 calling 43:7 47:23 52:10 77:13 78:15 81:8 124:11 129:6 calls 49:14 54:9 57:18 76:6 78:6,7 78:11,12 80:12,21 122:1,15,20,23 123:4,7,9,10,18 151:9 166:4 cambridge 7:11 camera 9:12 capabilities 31:6 31:22 160:15 165:13 169:18 170:15,18 171:20 172:4,16,20 173:5 173:7,12,16 174:7 174:16,25 175:9 | 175:14,20 capability 31:4,6 31:11,15,20 32:6,7 32:17 33:8 38:1,5 161:16 166:15 169:4,6,15,16,19 169:23 170:1,14 172:11,25 175:15 176:2,14 capacity 76:22 82:4 146:19 148:6 captainquizz 116:18 117:4,20 120:18 captioned 177:7 captured 177:24 car 200:1,3 career 13:16 cari 2:12 5:18 6:16 carry 101:6 case 1:8 6:22 7:4,7 10:19 16:10 18:9 18:25 22:14 45:9 59:17,21 65:1 67:5 79:25 80:4 82:9 90:15 101:17 119:18 120:4,16 144:6 148:4 152:18 162:8 169:1 182:15 187:17 193:25 196:18 cases 70:20 192:5 196:14,15 201:15 casts 109:17 categories 47:17 47:18,20,24 48:1 132:5 135:1 190:14,19 197:15 198:8 200:16 |
| | c | | |
| | c 155:24 ca 4:9,11,13,16,18 174:3 205:9,12,20 california 1:2 2:19 3:5,8 203:4 | | |

CONFIDENTIAL

[categorization - communication]

| | | | |
|--|--|---|---|
| categorization 29:8 136:13,18 | 42:17 43:2 46:11 46:13 91:7 118:4 | clarify 20:21 119:7 146:21 | collects 144:12,19 145:15 |
| categorize 29:9 | 118:17 119:6,9,12 | 185:15 | colorado 3:5 |
| categorized 130:14 132:16 136:16 137:6 198:4 | 119:13,22,23 120:3 121:11,14 125:21 126:2,10 126:12 131:23 146:8,23 147:1,5 147:20 149:25 158:18 177:8,12 177:15 192:12,19 194:9,9,12 200:8 200:10 201:2,6,22 204:14 | clarke 3:16 5:22 class 64:3 151:12 194:7 classed 27:3 classifiable 69:5 classification 130:17 classified 69:5 136:15,21 classify 98:25 111:2 137:8 | column 130:9,18 130:22 132:6 combination 16:2 come 9:12 10:9,12 11:17 18:22 42:14 72:6 153:15 176:24 202:7 comes 43:18 151:13 168:11 173:3 |
| category 47:9 178:21 197:10 199:4,25 | changing 169:19 | clausen 2:13 clause 64:9 clear 7:18 9:16 22:8 23:23 86:3 131:10,13 133:17 145:9 174:16 177:16,22 178:3,3 184:12 196:23 | coming 10:14 commencing 2:4 comment 102:24 102:25 103:5 117:12 118:8 127:25 |
| cause 81:11 124:2 190:10 204:6,20 | characterize 171:24 | clearer 151:1 | commentary 133:10 |
| caveat 8:24 67:18 | characterized 132:19 | click 20:6 | commented 102:22 117:24 120:6 |
| cc 174:5 | charge 29:16 | client 191:5 | comments 102:13 102:18,19 104:12 104:13 111:18 119:19 179:24 180:3 186:20 |
| ccp 205:9,12 | chat 93:6,8 96:23 | closed 105:12 | common 38:18 39:1 50:3 108:2 161:3 |
| center 45:2 | checks 171:3 | closely 66:21 | commonly 114:3 129:15 |
| central 14:5,7 | chen 3:18 5:22 16:3 | code 36:20,25 37:1 42:25 51:22 56:20 59:18,20 81:12 110:2 142:11 160:3 171:4 205:9 205:12,19,20 | communicated 53:18 |
| centrally 43:2 | choice 84:7,12 | cofounders 92:16 | communicating 10:24 11:3,6 |
| certain 20:1 31:21 51:17 86:14 99:5 134:14 149:4 152:4 160:22 166:12,20 167:22 182:6 189:3,5 | choose 53:2 56:18 90:13 94:3 101:1 106:8 | colleagues 14:25 | communication 63:22 64:10 65:18 67:18 72:4 |
| certainly 28:5 74:7 84:10 94:6 | chooses 57:4 | collected 44:10,23 131:13 | |
| certificate 204:1 | choosing 53:3 | collection 24:8 104:2,22 | |
| certified 204:2 | chosen 100:14 | | |
| certify 204:3,17 | christopher 174:6 | | |
| cetera 143:5 | chrome 144:8 | | |
| chain 4:8 | circa 71:20 | | |
| chang 174:5 | circumstances 167:22 | | |
| change 124:18 125:2 149:18 201:4 207:4,7,10 207:13,16,19 | civil 19:22 205:19 205:20 | | |
| changed 83:25 112:8,9 161:19,22 166:12 | clarification 7:9 13:4 17:12 21:17 24:3 27:9 54:15 | | |
| changes 4:17 41:11,14,16,18,20 | | | |

CONFIDENTIAL

[communications - continued]

| | | | |
|--|---|--|--|
| communications 64:6 company 13:10 28:12 38:15,24 40:21 45:10 53:19 57:10 64:25 82:6 92:16 95:14 142:24 144:22 145:3,16 148:8 159:21,21 171:2 complete 101:11 163:16 173:1,6 179:19 completed 205:7 205:17 206:6 completion 204:12 206:10 complexity 193:13 compliance 188:25 196:15 complicated 166:6 complication 193:23,24 component 66:1 155:19 compound 175:2 193:9 computational 99:1 compute 99:4 computer 11:10 204:10 conceive 162:2 concept 25:17 33:16,17,24 55:11 55:17 73:1 158:16 161:2,18 162:11 165:6,8 166:14 167:4 concepts 22:18 33:15,18 55:22 | 123:1 164:6 conceptual 161:18 concern 21:24 45:1,4 46:6 82:1 96:12,14 concerned 43:20 74:20 91:3 concerns 44:1,1,4 45:14,18 46:7,8,12 67:25 68:6,8 91:9 91:9,10,13,14,16 96:8,17 98:18 120:8,11 conclusion 120:13 conclusively 76:24 conditional 172:2 confident 46:19 confidential 1:13 configuration 42:18 configuring 42:19 confine 140:14 confirm 115:25 116:3,14,24 117:1 139:1 confusion 93:15 94:10,14 98:19 162:16 connect 167:10,11 167:16,18 connected 157:25 connection 141:9 cons 90:24 consider 27:20 96:8 144:11 167:15 considerably 161:22 considerations 187:25 189:9,11 189:21 190:20 | 191:22 considered 25:13 25:20,24 26:2,11 26:14,18,23,24 28:21 29:5 81:4 98:15 125:2 163:5 196:2 consistency 172:21 consistent 28:12 136:25 158:13 196:18 consistently 158:21 constantly 41:13 construe 103:1 consult 10:21 consumer 1:5 5:9 205:4 207:1 consumers 30:16 contact 127:22 205:9 contactable 133:3 contain 105:13 178:1 contained 17:4 18:6 46:10 131:23 177:3 contains 35:15 content 35:15 104:4 118:7,8 119:16 126:6 127:10,23 141:12 141:19 contents 50:15 context 13:3 23:24 25:16,18 26:3,21 28:6 30:8,10,11,14 30:24 31:5,7,10,14 31:14 32:1 34:2 34:14,16,21,22,25 | 35:9,17 37:12,14 48:4,24,25 49:7,17 49:19 52:7,14,16 53:13 54:11 55:10 63:8 68:19,25 81:23 90:14 99:12 100:18 106:16,23 107:4,5,10,13,18 108:7,22,24 109:2 109:5,6,11,19 110:10,12 129:3 134:9 137:19 140:5,6,25 141:5 144:14,15 157:14 158:4,5,7 159:5,16 159:25 161:4,10 163:23 164:15,19 164:22 165:9 168:1 178:13 179:5 181:15,22 183:7,15,24 184:5 184:7,11 186:12 186:24 190:11 193:22 201:17 contexts 51:9 72:19 96:21 157:24 continually 158:1 continue 120:16 126:20 149:12,13 166:21 199:8,9,13 199:14,15 202:7 continued 2:25 3:1 120:10 168:21 186:4 187:5 188:4 189:13,23 190:7 190:22 191:12,18 191:19,25 192:21 193:3 195:13 197:1,11,14 198:10 199:5 |
|--|---|--|--|

CONFIDENTIAL

[continued - daylight]

| | | | |
|--|---|---|--|
| 201:19 continues 119:10 120:12 continuing 114:15 149:3 152:4 198:21 contract 165:17 165:23 166:1 contracts 49:3 195:25 contractual 190:1 contributes 146:12 control 43:2 84:4 173:10 176:9 controls 83:25 171:18 convenient 184:19 184:20 conversation 15:16,17 22:6 23:20 conversations 15:9,20,22 187:20 cool 111:9 185:3 187:11 copy 12:4 correct 7:15 10:4 10:7 12:19 17:17 20:18 23:4 48:12 57:3 58:17 61:24 62:23 64:15,16 74:22 117:21 134:16 138:24 151:12 154:3 155:10 158:24 184:15 187:9,10 203:3 corrected 19:15 corrections 205:14 205:15 206:3,4 | correctly 16:4 34:8 64:4,5 95:22 97:24 107:1 118:9 118:10 126:13,14 187:1 correspondence 18:12 counsel 3:18,19 5:14 10:21 12:3 12:12 17:6 20:20 37:6 64:7 85:5 153:13 156:13 169:11 204:17 205:18,21 206:7 couple 97:4 127:6 130:4,6 156:21 197:3 course 8:13 12:22 23:19 64:17 65:20 75:8 76:6 156:23 157:5 court 1:1 6:3 7:22 22:13 30:1 cover 64:20 68:25 179:16 covered 65:20 69:2 99:20 148:13 create 23:15,17,17 53:16,18 108:17 129:22 130:6 139:21 created 18:13 93:15 94:10,13 129:16 133:19,20 147:12,12,13,14 162:20 163:1 168:14 178:9 creates 23:8 creating 175:18 crisp 145:8 | criteria 29:12 136:20 cross 1:17 2:2 4:16 5:8 6:5,12 9:20 10:3 11:12 12:17 13:7 14:18 17:15 18:17 19:19 37:11 64:22 67:15 114:22 120:19 125:10 153:11 157:13 169:14 174:4 176:21 184:13 201:23 203:8 205:5 207:2 crr 1:24 2:6 crutcher 3:4,7,10 3:14 csr 1:24 2:6 204:25 curious 81:20 currency 144:7 currently 12:18 15:2 custodial 133:24 custodian 178:11 customer 14:7 customers 189:2,4 cut 144:9 d d 4:1 156:1,1 d.c. 7:6 dallas 3:11 dan 15:7,17 daniel 2:13 3:21 5:18 6:17 dark 115:11 data 26:8 32:13 43:12 44:9,22 47:7 59:1 63:24 64:12 74:13 76:12 76:16,25 77:12,12 | 77:18,25 78:8,17 78:24,25 79:20 80:2 83:2 88:14 100:1,6,8 101:2 111:6 119:1,3 123:10,11 126:10 131:12,23 138:12 139:7,12 141:3,8 144:11,19 145:15 146:4,14 148:17 148:21 149:9 154:7 159:3,5 160:11,17 166:18 166:22 179:4,6,18 179:21 180:2,14 182:14,17,24 185:14,16 186:4 186:15 191:18,21 191:25 192:21 193:4,6,11,17,19 195:14 197:1,11 197:20,21 database 113:8 date 39:20 85:1 131:22 178:5,5 205:16 206:5 207:24 dated 75:20 92:9 204:23 dating 171:11,12 171:16 david 2:16 4:11,11 92:9,13,14,25 93:7 93:9 100:3,20,23 day 8:13 12:22 75:8 80:13 130:20 131:5,9,9,12 167:13 203:4 daylight 2:4 202:14 |
|--|---|---|--|

CONFIDENTIAL

[days - determined]

| | | | |
|---|---|---|--|
| days 76:7 78:18 79:3,7 117:6 december 4:10 92:10 decided 83:1 176:23 deciding 190:21 191:23 193:3 decision 43:24 45:3 186:5 decisions 72:4 187:13 deck 4:12 125:15 126:5 128:17 129:16 130:13 131:3,22 133:2,8 133:19 134:1,3 135:6 declare 203:2 deep 174:15 deeper 165:10 defendant 3:3 19:21 define 24:5 68:12 190:9 defined 113:6 120:15 186:15 191:8 197:22 definition 22:23 26:4 31:6 68:24 69:4 70:3,13 111:4 129:9,14 149:9 158:13 159:14,17 161:9 162:4 179:23,25 193:11,16,19 definitions 164:11 definitively 114:8 defunct 36:23 degradation 195:4 196:13 199:20 | 201:12 degraded 192:6 194:20 degree 14:9,10 64:21 delivered 17:1,24 100:22 denver 3:5 department 145:17 depend 13:2 162:24,25 depending 103:18 127:5 175:5 depends 26:4 32:24 109:18 161:15 depo 4:15 deponent 204:14 deposed 6:20,21 6:24 7:2 deposition 1:16 2:2 4:14 5:8 6:19 12:7,16 13:12 14:20 17:11 18:24 19:8,21 37:16 61:4 66:4,18 69:19 75:5 92:5 125:5 153:20 155:21 168:9 173:24 176:17 204:4,6,12,19 205:19,22,24 206:8,10 depositions 11:1 deprecate 176:23 deprecated 39:20 46:17,18 119:2 131:20 132:1 134:24 135:7,10 148:24 149:1,15 | 149:17,20 150:6 151:21 160:21 162:22 163:7,9,17 164:16 168:7,13 170:13 172:10,15 173:15,20 176:25 179:2,16 189:14 189:24 190:8,22 198:6 201:1 deprecating 119:5 124:12,13 149:5 150:15 152:3 deprecation 134:14 135:3 150:2 152:13 163:16 168:16,17 187:16 188:9,11 190:2 192:13 194:8,11 196:7,12 199:12 deprecations 134:25 135:14 180:19 188:15 189:7 190:5 192:12 196:20 depth 41:22 derek 2:14 5:17 6:14 205:1 derived 132:13,21 132:22,22 134:5 deriving 118:6 describe 13:13 15:13 70:14 72:13 91:8 97:17 109:9 110:11 125:17 169:15 183:20,22 described 35:7,8 63:4,6 106:23 112:17 130:10 138:3 139:19 155:6 182:24 | 189:9 190:13 191:19 197:3,4,5 198:8 199:1 describes 126:6 describing 177:12 description 4:7,21 111:11 160:13 171:23 177:1 design 85:21 154:21 designated 20:1 20:16 21:5 63:15 designation 28:11 28:24 29:2 designed 7:18 46:11 72:5 194:1 designee 1:18 desire 44:9,22 106:13 desk 11:10 detail 13:13 15:13 20:20 27:12 34:24 59:24 95:21 detailed 109:4 details 109:20 184:10 determinable 114:12 determination 133:4,21 137:15 162:6 195:2 determine 30:17 86:8 99:25 113:20 114:8 122:24 123:7 133:3 165:14 171:4,15 185:12 determined 99:24 133:22 137:12 194:24 196:1 205:18,22 206:7 |
|---|---|---|--|

CONFIDENTIAL

[determines - document]

| | | | |
|--------------------------|---------------------------|--------------------------|----------------------------|
| determines 55:12 | 198:9 201:4 | dialogue 125:20 | 197:23 |
| determining 71:16 | developer's 144:5 | difference 37:25 | discussing 28:7 |
| 85:8 88:13 133:8 | developers 23:16 | 72:25 164:18 | 157:20 189:22 |
| 173:19 188:1 | 24:9 38:4,8,12 | different 15:10 | discussion 91:21 |
| 196:6 | 42:25 43:6 44:8 | 31:24 33:15 40:24 | 92:17 93:22 94:1 |
| develop 65:21,24 | 44:11,21 45:9 | 41:2 47:20,21,24 | 94:6 160:20 169:9 |
| 156:24 | 55:15 70:7,18 | 51:7 54:18 55:3,5 | discussions 32:2 |
| developed 23:25 | 72:9 83:15 96:25 | 55:17 56:4 69:25 | 45:7,20 74:23 |
| 64:18 79:22 81:10 | 97:9,18 98:1,9,24 | 72:14,18 73:22 | 82:12,22 90:23 |
| 154:1 157:2 | 124:8 126:19,19 | 80:24 97:12,17 | 91:2 187:14 |
| developer 13:19 | 126:22,25 135:11 | 98:6,9 101:8,10,12 | disinterested |
| 32:12,18 35:1,3 | 138:6,7,8 140:1 | 107:15 113:4,23 | 204:7 |
| 36:3,8,13 37:23 | 143:22,23 144:2,4 | 127:4 132:5 | disorganized |
| 39:17 42:18,23 | 147:8,22 159:8 | 136:14 142:18 | 175:10 |
| 43:22 45:11 47:5 | 163:20 167:19 | 143:3,6,7 145:20 | display 183:10 |
| 48:5 49:21,24 | 168:3,5 187:15,19 | 145:22,23 148:2 | displayed 107:17 |
| 50:4 53:10 54:19 | 188:14 189:10 | 155:14 159:14 | distinct 55:22 56:3 |
| 55:4,19 65:5,9,16 | 190:3,11 191:4,15 | 161:7,7,12,13 | distinction 12:25 |
| 71:13 74:9 82:23 | 194:23 200:8 | 162:3,18 164:24 | 21:15 69:24 70:5 |
| 83:16 86:4 87:19 | 201:14,18 | 165:4,11,15,21,21 | 164:14 183:3 |
| 90:16 91:12 97:13 | developing 71:15 | 166:5 173:11 | distinguished |
| 100:2 108:13 | 126:20 | 175:5,20 179:8,17 | 21:19 |
| 113:12 114:4 | development | 183:5 189:11 | district 1:1,2 7:6 |
| 116:7 121:5,14 | 40:14,20 63:17,20 | 193:12 196:2 | dko 2:17 |
| 124:21 125:3 | 68:8 71:18,20,23 | 197:3 | dloeser 2:15 205:2 |
| 126:9,16,17,21,24 | 154:6,9 158:21 | differently 18:10 | docs 174:7 |
| 127:1,4 129:5 | 170:5 | 137:9 166:10 | document 1:8 4:14 |
| 136:2 138:2,9,16 | develops 171:8 | difficult 175:11 | 11:15 19:3 36:13 |
| 138:19 139:12,18 | device 53:24 55:7 | dig 61:19 | 36:17,18 66:7 |
| 140:9,12 142:10 | 55:21 56:16,16,18 | direction 204:11 | 75:10,14,15,17,21 |
| 143:21 146:11 | 56:21,24 57:6,16 | directly 116:25 | 75:23,25 79:5 |
| 154:6,18 156:6 | 57:17,21 58:7,13 | 157:10 | 93:2 100:17 |
| 158:5,11,19,22 | 58:16,21,22,25 | disagree 93:13 | 123:23 124:1 |
| 159:19 160:10,10 | 59:6,20 60:8,10,12 | discuss 9:12 28:3 | 147:9,12,18 148:3 |
| 162:21 163:5,23 | 60:16,17 171:21 | 101:10 116:13 | 148:9,10 151:7 |
| 165:25 167:7 | 194:3 | discussed 28:5,8 | 152:17 174:12 |
| 169:21 172:5 | devices 43:1 191:6 | 28:10 38:7 45:4 | 176:11,20 177:7 |
| 173:3 175:24 | 195:20 200:5 | 45:23 91:17 | 177:11,16,17,18 |
| 176:1,10,12,13 | diagnosed 80:23 | 126:15 162:4 | 177:23,24 178:1,4 |
| 183:22 187:8 | diagnosis 80:14 | 176:21 181:14,17 | 178:9,11,14 181:8 |
| 188:11,22 196:25 | | 182:6 186:15 | |

CONFIDENTIAL

[documentation - event]

| | | | |
|--------------------------|----------------------------|---------------------------|---------------------------|
| documentation | e | elia 15:7 | 137:25 140:1 |
| 35:19,24 36:4,12 | e 2:20 4:1 205:9,12 | elicit 113:4 | engineer 13:18 |
| 107:23 108:13 | 206:1 207:3,3,3 | email 4:8,16 37:14 | engineering 14:12 |
| 112:21 122:4 | earlier 100:12 | 38:17 75:17 77:15 | 14:17 |
| 174:20 | 130:24 131:14 | 77:25 80:5 81:15 | engineers 23:11 |
| documents 16:15 | 153:25 162:5 | 81:18,24 82:2,4,7 | 59:19 85:13 171:9 |
| 16:16,17,19,23 | 179:7,23 184:6 | 92:8 93:1 174:4 | 173:18 |
| 17:19,21,22,24 | 186:16 197:22,23 | 174:10 175:9 | entering 26:19 |
| 18:3,6,8,11 28:19 | early 10:15 32:25 | embed 50:5 | entities 21:18 |
| 29:23 33:10 45:1 | 42:23 154:5,9 | embedded 50:10 | 23:14 25:9 30:20 |
| 45:6 61:15 64:25 | easier 63:11 | 50:11 51:1 | 38:8,12 47:21 |
| 65:1,2 66:25 67:4 | 110:23 186:7 | eminently 81:1 | 49:14,20 52:17 |
| 72:3 82:20 89:13 | 198:2 | emit 102:2 | 173:2,14 190:12 |
| 96:5 123:6 147:3 | easiest 56:10 | emitted 102:15 | 197:4 |
| 152:17 157:21 | 163:10 | 113:17 114:9,13 | entitled 204:6 |
| 159:11 160:20 | easily 78:12 | 180:2 182:17 | entity 22:20 23:1 |
| 162:16 175:24 | easy 156:2 | 186:18 | 23:25 50:4,14 |
| 191:8 196:18 | economic 99:19 | emitting 119:1 | 52:12 54:6 55:12 |
| doing 10:16,17 | ecosystem 22:25 | emma 2:15 5:19 | 139:13 155:23 |
| 56:19 58:4 79:15 | 42:24 121:14 | 6:17 | 156:16 157:1 |
| 79:15 127:20 | 138:21 159:19 | employed 13:7 | 159:18,20 196:24 |
| 150:5 157:5 | eddie 4:11 15:6 | 15:2 | entity's 31:20 |
| doubt 10:16 133:7 | 67:11 92:9,25 | employee 92:14 | equities 45:8 |
| downloaded | 93:6,8,12 95:10 | employment 64:18 | errata 205:14,16 |
| 121:16,19 | 133:24 | 65:21 156:24 | 206:3,5 |
| drafting 63:23 | educate 152:14 | enable 24:9 32:18 | esq 205:1 |
| 64:11 | educated 67:17,22 | 52:18 98:7 105:25 | established 165:16 |
| draw 21:16 73:1 | 67:23 156:10,11 | 166:20 | estimated 135:13 |
| 109:14 183:3 | education 14:11 | enabled 31:17 | estimates 147:6,21 |
| drawing 12:25 | efficiently 79:22 | enables 87:3 | et 143:5 |
| drawn 21:15 | effort 113:16,18 | ended 154:16 | eugene 15:7 |
| draws 109:11,12 | 113:22 114:2 | endpoint 114:4 | evaluate 150:3 |
| drive 17:3 | 123:7 172:18 | 183:9,15,19,20,24 | evaluated 121:7 |
| drivers 43:23 | egnyte 115:5 | energy 99:1 | 135:2 |
| due 76:6 | eight 18:1 119:25 | enforced 188:12 | evaluating 134:14 |
| duly 6:7 204:4 | either 29:25 | enforcement | evaluations |
| dunn 3:4,7,10,14 | 129:25 204:18 | 115:2,20 116:11 | 131:18 |
| 5:21 | electronic 14:16 | 188:15 | evening 202:10 |
| dunne 178:10 | electronically | engage 143:4 | event 62:17,20 |
| | 16:24 | engaging 70:18,23 | 63:1 103:2,3,6,16 |
| | | 86:2 97:21 98:2 | 103:19,24 129:22 |

CONFIDENTIAL

[event - facebook]

| | | | |
|--|---|---|--|
| 204:19 events 62:5,6,7,8 62:10,15 103:4,10 103:11,14,20,22 113:25 129:25 130:6 193:22 everybody 16:1 evidence 91:1,2 133:21 150:21 evolution 41:9 evolutions 41:2 evolved 41:1,13 ewright 2:16 exact 109:5 110:9 exactly 7:5 35:21 45:22 81:17 84:25 93:17 96:3,21 109:20,25 110:13 110:14,14 112:9 129:7 136:20 139:1,2 161:15,19 165:14 177:25 184:9,10 examination 4:3 6:10 examinations 4:2 examined 6:8 example 8:4 24:17 26:13 28:14,17 33:22 38:17 56:11 56:12 57:1,13,24 58:9 59:14 62:3 62:12 72:17 78:16 81:9 103:25 106:4 108:4 127:8 138:14 139:9 141:14 143:8 159:20 163:9 165:4,24 166:13 167:9 171:7 180:1 180:8 181:5,6,7 | 182:16 183:11,23 183:25 186:20,23 191:1 199:24 201:3 examples 39:3 50:3 77:20,21 99:18 exceeded 82:9 excellent 11:11 68:15 exception 199:11 exchange 38:16,19 38:21 39:9 exchanged 25:8 38:14 54:21 exclusively 66:24 excuse 94:23 exhausted 200:15 exhibit 4:8,10,12 4:14,16,17,22,22 18:18,19 19:4,5,6 19:6,11 63:9 75:2 75:4,5,12 92:4,5 92:21 114:23,24 115:6,8,9,16 125:5 125:7 153:12,17 153:20,24 173:24 174:2,2 176:16,17 177:6 exhibits 4:6,20 63:11 exist 39:14 51:20 171:4 181:23 existed 36:7,11,15 36:17,19,25 39:10 51:11,25 65:10 139:25 161:20 179:17 184:9 197:7,8 existence 29:11 39:2 137:22 170:1 | expand 68:24 expect 58:1,7 165:25 expectation 91:16 100:23 expense 96:25 98:12,15,22 99:6 99:16 experience 24:18 53:7,17,18 55:3,5 57:19,20 58:2,15 58:22,24 60:12 66:12,13,15 70:23 97:14 137:25 139:11,21 140:7 140:21 155:24,25 156:3 188:8,18 191:5,10 192:3,6 194:2,20,25 195:4 196:14 199:21 200:3 201:12 experiences 15:3 52:20 53:22 70:19 86:2 90:3 97:22 98:2,10 140:2 194:1 195:20 expert 19:13,17 128:5 expertise 127:18 explain 24:25 37:24 39:5 42:15 59:14 85:19 108:22 128:11 157:13 162:15 171:6 174:22 explained 59:23 explanation 62:14 explicitly 68:23 76:20 140:12 141:1 | exposed 80:25 197:21 expressed 45:5,14 46:6 96:14 120:8 120:11 expression 42:8 117:14 extension 192:9 194:19 199:12,24 201:9,11 extensions 149:12 189:17 190:4 192:3 194:14 196:6,12 197:6 200:7,12,21 extent 124:3 131:18 182:20 extra 192:7 194:21 195:7 199:19 |
| f | | | |
| f8 4:17 177:8 facebook 1:5,18 3:3 5:9,21 7:13 12:23,24,25 13:1,8 13:9,15,24 14:2 15:21 17:7 18:9 18:13 19:1,21 20:16 21:6,13 22:15,25 23:4,8,10 23:11,15,16,18 24:1,7,8,10,11,14 24:15,17,19,22 25:1,19 26:8,11,17 26:20,25 27:14,15 27:20 28:3,3,15 29:4,4,6 30:21,22 30:23,25 31:13,15 31:17,23 32:8 33:2 34:2 35:15 35:24 36:3,8,13,20 36:24 37:1,19,22 | | | |

CONFIDENTIAL

[facebook - fine]

| | | | |
|--|--|---|---|
| 38:9,11 39:8,17 41:10,25 42:13,17 42:21 43:4,9,14,15 43:22,25 44:9,22 45:9,11,13 46:5 47:2,3,5,7,10 48:4 48:6,7,8,11,15,19 49:1,5,11,14,15,21 49:23 50:6,9,17,20 50:22,22 51:2,8,19 51:22 52:9,12,17 52:19,19,20,22 53:9,11,16 54:2,5 54:6,7,7,10,12,17 55:4,6,10,24 56:13 56:17,22,23 57:2,5 57:9,14,15,19,20 58:2,6,15,22,23,24 59:22 60:8,10,11 60:13,16 61:14,22 62:9 64:2,18 65:5 65:14,16 68:2,4,11 68:17,17,20 70:17 70:25 71:1,4,13,15 74:9,18,20 77:1 78:2 79:18 81:4,7 82:8,23 83:1,4,16 84:19 85:21,24,25 86:4,7,8,20 87:19 89:1,5,9,17 90:9 90:16,19,20,23 92:14,18 93:22 94:20 95:8 96:25 97:15 98:13,20,22 99:6,9,17 100:13 104:4,13 105:12 106:9,10,15 108:5 108:20 109:25 110:3 111:6 113:8 113:12,15,19,20 114:4,8 116:5,6,12 | 116:13 119:2,4,6 121:4,7 122:1,14 123:3,13,16 124:18,21 125:3 125:20 126:17,21 126:22 127:2,3,11 127:12,13,22,23 129:5,13 131:15 131:18 132:18,23 132:25 136:4,24 137:8,9 138:1,8,9 139:18,25 140:4,9 140:23 141:7,10 141:12,16,25 142:8,15,17,24 143:5,21 144:1,3,8 144:8,11,18 145:13 146:3,5,10 146:12 148:7,8,14 148:15,16 149:2 150:3,4,5,6,18 151:11,20,21,23 152:2 154:6,18 155:13 156:6,24 157:9 158:5,11,14 158:19,22 159:8 159:15,19,22 160:4,20 161:6,10 162:2,21 163:23 164:22 165:9,17 165:17 166:20,20 167:3,7,10,11,16 167:18 168:1 169:5,7,17,20 170:25 171:1,8,11 171:12,16 172:5 173:3 174:23 175:19,24 176:6,8 176:11,22 180:12 180:14 185:12 186:3 188:1 | 189:12 190:7,13 190:15,21 191:5 191:22 192:20 193:2 194:2 195:13 197:13 199:5 200:2 201:4 205:4 207:1 facebook's 22:20 32:1 57:18 58:14 63:24 64:12 81:11 82:1 99:16 128:5 129:9 138:16,19 138:21 139:19 147:7,22 151:18 159:10 161:8 163:6 200:15,19 facebook.com 24:11,16,19 fact 11:24,24 69:12 91:21 133:11 160:16,19 184:8 190:15 factors 137:14 facts 11:16 108:16 108:17 faint 177:20 fair 8:11 9:8,9,18 9:19 22:2,3,9 23:22 25:23 69:22 77:10 91:8 110:18 123:19 135:5 160:13 171:23 175:12 181:25 fairly 182:24 familiar 25:10,12 27:7 33:23,24 42:8 52:1 61:16 61:17 62:5,6 72:12 105:16,18 139:6 184:8 | fang 4:16 174:5 faster 46:20 fault 134:21 fb 4:9,11,13,16,18 174:3 feature 85:13,14 85:15 87:3,4 88:8 171:9,10,13,13,16 features 31:16 49:23 50:2,8 170:25 171:5,19 172:7 173:12 181:9 federal 19:22 206:1,8,9 feed 77:22 feedback 43:19 52:20 55:11 94:15 115:2,20 116:10 feel 38:24 164:9 202:5 fields 183:15 figure 61:20 164:13 figures 80:17 figuring 174:23 file 133:24 files 17:2,4 filings 16:9 finance 145:17 financial 99:25 142:17 144:18 145:14 148:15 149:3 150:14 189:1 find 36:2,14 65:9 66:16 76:9 78:3 80:6 133:6,12 150:22 fine 8:12 60:22 153:2 |
|--|--|---|---|

CONFIDENTIAL

[finish - friends]

| | | | |
|----------------------------|--------------------------|---------------------------|--------------------------|
| finish 8:16,25 9:6 | 158:20 192:7 | 102:3,12,20,20,22 | friends 25:2 27:5 |
| finished 114:15 | 195:16 197:16 | 102:23 103:1,6 | 27:14,15,16 35:11 |
| firm 6:14,18 | formal 150:13 | 104:20 106:17,20 | 35:16 44:5 57:12 |
| first 6:7 7:3 13:16 | forms 163:25 | 110:21 113:6,9,17 | 57:24 58:3,4,9,18 |
| 13:17 40:8 44:15 | forthcoming 66:23 | 114:10 117:20 | 58:20 59:1 60:1,7 |
| 45:13 70:20 75:24 | forward 10:13 | 119:1,2,5,11 | 60:9 61:22,24 |
| 75:25 78:16 87:20 | founding 86:3 | 120:20 121:2,5,8 | 62:22 63:2 68:22 |
| 90:7,8 97:6 | 90:18 | 121:17,23 122:2,6 | 71:12 72:21,23,24 |
| 116:23 125:15 | four 48:18 | 122:6,13 123:5,10 | 73:5,6,6,12,15 |
| 130:9 132:6 133:1 | fql 39:4,12 | 123:11,14,19,20 | 74:4,11,13,19,22 |
| 133:14 158:14 | frame 32:20 82:17 | 124:3,13,15,20,23 | 77:13,21,25 82:8 |
| 167:2 168:6 | 97:23 142:4 | 131:1,8 132:2 | 83:9,12,21 84:21 |
| 178:16 181:9 | 154:12 188:12 | 137:17 138:2,11 | 86:9,22 87:25 |
| 186:14 | framing 34:8 | 138:14 139:7,8,10 | 88:2,17,20,22,25 |
| fit 111:11 | francisco 15:8 | 139:20 140:5,15 | 89:2,3,24 90:11,13 |
| five 153:3 | 67:13 | 140:18,20,24 | 90:25 91:5,24 |
| flag 81:5 | frcp 206:1 | 141:3,8,22 142:1,2 | 92:20 93:13,25 |
| flesh 32:4 | free 44:11,24 | 149:5,6,8,14 | 94:22 95:24 96:14 |
| flexibility 184:24 | frequently 12:23 | 151:11,20,21,25 | 96:18 97:8,18 |
| flip 128:18 | 37:17 73:24 74:2 | 152:2,3,4,12 154:1 | 98:3,12,23 101:15 |
| fly 10:19 | 74:4 98:8 | 154:22 158:25 | 101:23 102:8,11 |
| focus 97:5 180:19 | fresh 153:5 | 159:3,5 160:11,17 | 103:7,17,21,23 |
| folded 109:16 | friend 27:6,7,10 | 168:8,11,20 169:2 | 104:6,15 105:1,9 |
| folder 16:25 17:1 | 27:18 32:12 33:1 | 179:4 180:17,21 | 105:11,14,16,18 |
| 17:3 | 33:4 35:2 58:8 | 180:23 181:1,3,6 | 105:23,25 106:10 |
| folks 16:17 154:20 | 59:4,4 63:17,22 | 182:6,11,16 183:1 | 107:7 110:6,24,25 |
| 155:14 194:4 | 64:1,3,14 68:7,9 | 183:4 184:1 | 111:3,6,7,12,14,19 |
| follow 39:23 51:18 | 68:11,14,18,20 | 185:13,14,16 | 113:14,24,24 |
| 85:3,8 147:17 | 69:1,7,10,13,16,19 | 191:18,20,25 | 117:12,15,16 |
| followed 188:10 | 69:20 70:4,6,12,14 | 192:4,13,21 193:4 | 119:16,20 120:2,6 |
| following 64:8 | 70:16 71:6,10 | 193:6,11,17 | 122:9 127:12 |
| 129:18 | 72:1,8,11,15 74:6 | 194:11 195:14 | 129:19 131:4 |
| follows 6:8 205:8 | 74:17,24 82:25 | 196:19 197:1,11 | 132:6,8,17,20,24 |
| fonti 2:18 5:25 | 83:2,14 84:6 | 197:18 198:4,15 | 133:11,13,15,17 |
| foot 42:8,12 | 85:17,19 86:15 | 198:18,21 199:15 | 137:24 138:13 |
| foregoing 203:3 | 87:1,10,14,22 88:2 | 200:23 201:11,16 | 140:16 141:14,16 |
| 204:3 | 89:20 91:22 92:18 | friend's 86:23,25 | 141:23 148:17,20 |
| forensic 156:5 | 93:23 96:9,11 | 87:10 91:23 | 149:9,16 154:7 |
| form 38:23 39:8 | 97:11,20,25 99:8 | 179:21,24 183:11 | 166:18,21 178:22 |
| 39:17 142:23 | 99:21,25 100:1 | friendlists 129:20 | 179:6,8,11,18,20 |
| 147:10 148:11 | 101:13,18,19,23 | 129:21 130:5 | 180:2,9,11,14,25 |

CONFIDENTIAL

[friends - granted]

| | | | |
|--|---|---|---|
| 181:14,14,21,22 182:12,22,24 183:2,13 185:17 185:21,25 186:4 186:15,19 193:20 196:8,9 197:21 198:5 199:15 200:10 201:7 front 20:9 45:2 75:21 full 75:25 145:3 193:2 fully 35:6 function 38:7 195:22 functional 164:4 171:22 functionality 31:18 127:5 189:6 functioned 63:20 87:13 98:16 functions 25:4 further 185:5 204:17 fusz 178:11 | 172:1,12,18,20 173:12 gatekeepers 170:22,23 171:3 171:14 gates 170:10,13,16 170:20 gather 10:5 40:12 155:3 157:23 gathered 25:22 general 25:17 46:24 96:17 99:5 99:13,13 127:18 129:3,8,14 130:16 149:25 157:9 158:17 161:9 177:4 188:12 194:8,9 197:22 generally 28:1 29:10 30:12,14 31:8,10,13 37:21 38:3 50:1 109:10 157:18 159:8 162:9 167:6,19,24 195:23 200:23 generating 134:7 134:15 135:4 getting 63:13 84:3 86:25 115:11 142:1 158:1 164:6 164:7 202:2 gibson 3:4,7,10,14 5:21 gibsondunn.com 3:6,9,12,13,16 gillian 178:10 give 16:1 28:14,17 34:12 39:24 54:23 56:20 62:3 66:5 69:1 76:11 80:9 100:5,7 106:13 | 107:24,24 109:22 110:16 139:15 145:8,24,25 181:6 184:12 199:19 200:7 given 17:8 31:2 65:23 69:3 80:3 80:10 90:13 99:17 114:11 122:11 131:9,21,22 139:3 158:8,16 161:1,21 166:5 176:9 192:7 193:2,10,11,16 194:21 195:1 200:8 gives 103:3 giving 44:10,23 76:10 78:4 80:7,7 80:18,20 122:10 145:11 164:16 201:13 glad 23:7 go 8:17 12:4 13:12 14:15 29:6,13 36:1,14,22 41:23 46:22 47:19 59:11 63:9 65:9 75:16 85:10 92:1 93:5 93:10 94:25 101:5 106:6 109:24 110:9 125:4 130:18 132:3,18 133:12 144:24 145:16 149:23 154:25 156:2 176:15 178:15 182:9 185:5,11 188:19,20 198:2 goals 126:8 godfather 108:6,9 108:20,21 | goes 178:19 going 8:21 10:13 12:13 13:8,11 16:3 21:12,16 47:19 60:19 61:13 63:10,13 75:3,8 92:3,24 101:24 114:22 115:10 131:19 134:23 142:20,22 151:8 151:15,16 152:20 153:11 154:25 169:15 174:1 181:24 184:24 185:22 202:1,5 good 5:16,24 6:12 8:4 16:7 18:2 24:2 26:13 30:3,3 56:10,12 61:8,9 120:24 152:21 153:4 185:1,8 199:24 202:4,6 google 17:3 gotten 93:17 95:17 govern 197:20 governed 33:8 38:6 49:3 165:22 167:17 195:25 governing 141:11 grant 30:22,25 35:13 83:7 87:15 118:20 168:3 189:12 198:19 grantable 124:16 granted 53:5 55:13 73:24 88:11 88:12 89:24 121:23 156:15 157:1 160:6 165:22 176:14 187:22 190:5 |
| g | | | |
| gain 89:22 127:2 160:11 gained 127:3 game 144:7,7,10 games 134:11 144:6 148:7 garble 185:22 garrie 3:21 6:2,3 gate 170:25 171:9 175:23 gated 112:7 171:13 183:4 gatekeeper 170:23 170:24 171:10,14 171:15,17,21 | | | |

CONFIDENTIAL

[granted - implemented]

| | | | |
|--|--|---|---|
| 192:3,9 195:9 199:11,23 200:7 200:12 201:9 granting 157:25 194:14,19 196:11 201:11 grants 185:24 granular 88:6,10 graph 22:22 23:2 24:23,24 38:13,18 39:1,10,22 40:2,3 40:4,7,10,11,14,25 41:3,4,12,13,15 43:10 45:25 46:2 46:9 47:7 50:7 51:13 53:19,23 54:22 73:10,17 77:9 118:11,13 120:25 121:9 126:9 128:10,12 131:16 146:5 176:22 186:9 great 18:23 44:14 60:24 96:25 98:12 99:16 185:9 greatly 166:25 group 48:18 105:6 105:12,15 115:1 116:12 group's 105:14 groups 104:21,22 104:23,25 105:3,5 113:25 193:21 guess 24:5 40:14 69:11 | happened 59:18 120:18 187:14 188:16 happening 11:8 45:21 119:12 134:10 happens 107:19 160:2 164:24 happy 22:10 184:16 202:1 hard 45:23 69:3 74:1 76:18,20 82:2 95:11,13 109:21 112:9 132:14 139:14,15 145:2,8,24 154:22 164:7 177:25 193:15 200:4 harder 43:1 hardware 55:20 head 8:4 79:8,16 109:21 200:1 header 130:22 heading 181:9 hear 22:15 heard 42:10 43:19 43:25 44:16 45:13 45:18 48:13 52:3 94:15 96:4 98:18 146:9 hello 76:3 help 11:16,17 23:5 24:13 25:15 26:6 26:22 27:9 30:10 32:4,20 37:12 42:5 47:17 52:6 68:12 72:10 73:18 99:11 101:25 110:3 121:18 143:12 144:13,15 157:4 179:5 | 184:17 helped 33:9 34:17 helpful 13:5 33:11 35:22 54:15 101:9 108:4,18 123:24 helps 93:1 162:15 hendrix 4:9 15:7 75:19 hendrix's 19:8 hereto 204:16 hey 174:15 high 14:10 25:11 62:14 128:25 129:1,2,6,8,10,12 129:14,18 130:11 130:14 161:17 highly 26:24 27:2 27:4 28:4,10,15,21 29:2,5 himmel 154:3,17 holly 1:24 2:5 204:2,25 honestly 9:21 hope 124:12 hour 152:20 153:1 hours 18:1 house 3:18,19 houston 3:15 hregan 3:13 huge 96:24 97:11 i ian 3:18 5:22 16:3 idea 40:1 71:5 76:11 80:10 174:19 175:23 identifiable 78:13 identification 4:6 17:8 63:19 75:6 92:6 125:6 153:21 173:25 176:18 | identified 122:1 123:17 129:18 134:15 identifies 54:8 113:8,11 130:10 identify 5:14 16:7 38:20 51:20 85:14 113:16 122:15 123:3,3 132:18 133:1 172:8 180:16 identifying 121:16 180:13 identity 76:8,13 76:16,25 77:11,12 77:17 78:17 79:20 ids 160:5 173:4 194:12 201:3 illustrate 106:3 image 116:23,25 imagine 71:21 106:5 171:11 ime 15:6 67:12 150:24 152:16 immediate 85:12 impact 9:21 64:1 66:20 67:8 81:10 91:2 99:20 121:13 145:7 146:8,23 147:1,7,21 149:3 149:20,25 150:14 151:10,19,25 152:1,11 impacted 98:20 135:3,13 impacts 188:17 implementation 73:16 176:22 implemented 46:13 100:14 166:14 |
| h | h 207:3 half 198:13 handled 205:8 hannah 3:13 5:22 | | |

CONFIDENTIAL

[implementing - integration]

| | | | |
|---|--|---|--|
| implementing 131:16 | index 4:2 | 54:21,23 55:1,12 | 128:2,7,13 137:18 |
| importance 136:23 | indicate 72:4 80:3 154:2 | 56:7,21 57:3,8,10 | 137:18,20,23 |
| important 7:21 8:3 9:14 20:24 22:5,13 40:5 55:23 69:24 73:1 119:7 186:13 190:24 192:14 193:7 202:6 | indicated 7:20 9:11 12:17 17:15 80:6 189:16 | 57:11,23,24 58:3,8 58:11,19 59:4,5,5 59:25 60:4,13 61:21,22,23 62:16 63:5 68:1,22 69:1 69:10,13,15,17 70:24 71:11 72:9 72:15 74:11,19,21 77:1 79:24 80:24 82:13,15 83:6,8,8 83:13,17,22 84:5 84:17,22 85:4,18 85:23,25 86:9,14 87:1,8,11,23,24 88:10,21,22 89:4 89:10,19,22 90:14 90:19,21,25 91:4 91:11,15,19,24 92:18,19,20 93:24 94:3,7,16 96:15,18 97:8,19 98:12 99:8,9 101:9,13,19 101:22 102:3,20 102:25 103:5,15 103:21,23 104:4,6 104:9,16,19,20 105:1,20,24 106:17,20,24 107:11,14,21 108:1,8,18,23 109:7,11,13,14 110:1,7,13,17,22 111:1,2,3,6,7 113:5,6,9,13,17,20 114:10,12 117:21 117:23 119:11,17 120:1,5,20 121:17 122:24 123:5,15 124:4,5 127:14,15 | 138:3,12,15 139:8 139:10,20 140:5 140:10,10,15,20 140:21,24 141:5 141:21,23 142:2,9 142:12,13 145:16 145:23 155:13 157:6 172:11,23 173:1 179:10 182:7,20,23 183:1 183:5 185:18,20 186:1,19,21 194:5 |
| impossible 141:8 193:10 | indication 76:7 | | informed 156:13 |
| inappropriate 80:3 145:11 | indicative 78:14 | | inherent 70:16 |
| inception 71:14 | individual 175:15 176:10 | | initial 40:13 70:2 |
| include 35:2 57:11 59:5 104:15 105:8 105:10 130:5 179:3 196:9 | industries 201:17 | | initiatives 121:12 121:15,25 124:3 131:15 |
| included 60:13 69:16 91:13 102:17 103:16 104:12,19 105:5 121:15 154:7,22 174:24 178:21 179:23 180:15 194:10 196:8 205:14 206:3 | industry 31:11 161:3 167:21 189:1 | | ins 50:4 51:7,11,12 51:16,20,24 |
| includes 11:16 129:3 193:19,21 | inefficiently 81:3 81:10 | | inside 64:24 144:8 144:9 171:2 200:3 |
| including 18:8,11 63:18,23 64:11 75:19 98:2 132:2 171:1 180:1 194:12 | inference 129:6 | | install 135:19,23 136:1 |
| income 143:4,18 143:22 144:1,3 | infers 144:12,19 | | installed 88:17 121:20 123:17 |
| incorrect 110:16 | inform 128:7 | | instruct 95:3 |
| increase 43:21 | informal 49:2 | | instructs 8:15 |
| | information 14:22 22:21 25:8,14,19 25:21 26:2,9,12 27:14 29:7 30:17 30:20 31:1 33:11 35:1,2,11,25 36:15 36:23 37:7 38:9 38:11,14,16,19,21 38:23 39:9 43:16 43:20 44:2,6,8,21 44:24 45:15 47:3 47:22 48:5 49:5 49:16 50:9,12,18 50:22 51:8 52:10 52:13,22 53:4,4,17 53:22,24 54:17,19 | | insurance 189:1 |
| | | | integrating 51:8 97:14 |
| | | | integration 30:16 52:2,3,5,11,16,23 52:24 53:8,21 54:16 55:2,7,25 56:1,6 83:1 190:13,16,25 191:7,12,20 192:24 193:25 |

CONFIDENTIAL

[integration - launched]

| | | | |
|--|---|--|---|
| 195:19 196:1 200:1 integrations 126:20 167:14 190:17,17,18 192:25 197:5,7 199:1 integrators 30:16 integrity 14:5 intend 11:21 69:20 140:4 intended 118:5,17 118:19 140:16,23 intent 107:2 interact 24:10 53:11 55:25 140:2 interacts 56:7 interchange 38:23 55:1 interchangeably 21:13 interested 81:7 183:7 186:2,8 187:5 204:19 interface 25:7 30:18 interfere 9:25 internal 18:11 36:24 37:2,3 115:1 169:6,16 internally 74:23 116:13 international 10:16 internet 18:23 interpret 77:15,16 78:2,19 interpretation 77:4,10 78:5 interrupt 39:14 79:10 | interrupting 59:12 introduce 6:13 92:3 153:18 introduced 85:1,9 87:18 90:2 181:24 182:2 introduction 43:5 120:25 121:3,9 invisible 113:24 inivable 111:14 181:14,21 invited 62:12 involve 145:22 involved 29:14 40:19 48:17,20 63:19 66:22 71:15 71:17,19,23 150:25 154:5,12 154:14,18,21 157:11 173:18 192:2 194:17,18 195:3 196:11,15 involvement 65:23 156:5 involving 69:7 ios 24:17,20 issue 21:21 67:2 82:3 issues 42:12 93:16 94:11,19,21 95:8 95:12 | joined 13:10 40:21 61:4 154:15 168:9 josiah 3:16 5:22 jsc 1:8 june 115:3 116:4 117:19 177:20 178:9 jury 22:14,15 | 120:17 129:2 132:10,13,21 133:7,19 136:6,8 136:11,17,20 137:11 147:13,14 150:13,19,20 154:18,23 157:8 158:18 159:25 164:24 170:7,19 185:22 191:8 192:10 201:10 knowledge 64:19 64:20 65:18,21,24 66:3 111:24,25 138:23 155:20 156:25 knowledgeable 128:1 known 29:19 40:18 41:6 65:12 68:1,3 135:18 knows 94:20 95:8 ko 2:16 konstantine 29:17 konstantinos 4:8 29:17,20 kp 29:19,25 75:18 76:2 77:11 80:5 81:14,18,20,25 82:5 |
| | j | k | l |
| | jackie 174:5 january 13:22,23 48:22 jclarke 3:16 job 1:25 170:4 171:25 205:5 207:2 john 3:20 5:11 | keen 126:20 127:22 keep 60:23 169:15 184:24 202:1 keller 2:11 5:17,19 6:15 kellerrohrback.c... 2:13,14,15,16,17 205:2 key 132:4,5,19 133:12 134:15 135:11 136:7 kind 14:22 41:5 55:3 136:12 140:17 161:12,13 186:14 200:2 kinds 145:23 172:2 kingdom 2:4 knew 123:13 know 10:25 15:24 17:6 19:2 24:16 29:15 32:25 38:22 45:12,17,22 46:15 59:14,15,17 66:17 70:21 71:8,8,22,24 76:18,20 80:24 82:2 84:8,24 90:7 92:13 94:12 95:7 95:11,17 97:2,22 109:4,12 110:5,20 112:1 113:15,22 | large 41:20 late 14:1,4 61:9 202:2 laufenberg 2:12 5:18 6:16 launch 41:5,15 43:4 167:8,13,15 167:18,24 177:2 launched 39:18 40:3,10,17,20 41:8 |

CONFIDENTIAL

[launched - major]

| | | | |
|---|--|--|--|
| 41:20 46:16 51:13 71:21 87:20 88:7 119:14 121:11 125:20 147:6 167:8,8,12 launching 71:22 167:23 law 2:12,13,14,16 2:20,21 3:6,9,12 3:13,16 leading 29:21 91:6 learn 109:25 led 126:1 150:25 192:16 legal 65:2 93:16 94:11,19,21 95:8 95:12 192:8 195:6 205:7 lesley 2:20 5:25 level 42:9,12 54:20 54:25 59:15,16 62:14 145:3,5 161:18 lifespan 161:8 light 185:7 lights 115:11 liked 102:22 117:24 120:6 likes 72:17 102:17 102:19 111:19 119:19 limit 44:7,20 89:8 165:4,5 166:1,2 limited 63:18 69:6 105:24 106:19 107:25 126:11 138:2 140:25,25 148:20,23 182:15 182:23 186:18,21 192:5 198:22 | limiting 43:12 119:15 128:13 165:24 limits 166:3,8,11 line 96:22 205:15 206:4 207:4,7,10 207:13,16,19 lines 70:9 link 17:3 116:20 116:21 linkedin 13:12 40:12 list 18:6 29:3 62:25 77:22 105:4 105:5,8 113:7 116:8 132:21 136:5 158:9 164:25 176:24 178:18,24 179:2 179:14 180:7,15 181:13 182:11,12 183:2 193:2 198:6 199:23 listed 129:25 179:22 181:5 listening 16:5 lists 73:4 178:23 181:6 litigation 1:6 5:10 6:16 21:21 147:16 168:2 205:4 207:1 little 12:14 15:13 142:14 155:2 177:19 live 10:8 llp 2:11 3:10,14 loaded 114:25 located 2:3 10:3 locked 205:12 206:1 | loeser 2:14 4:4 5:16,17 6:10,11,14 7:12 12:2,11 17:6 17:14 18:15,21 19:5,12,18 37:6,10 60:18 61:7 66:14 75:1,7 92:1,7 94:25 95:5 101:3 112:15,23 113:2 114:14,22 115:9 115:15 125:4,7 138:22 143:2 145:12 146:2,15 146:20 148:22 153:11,22 168:23 169:13 173:22 174:1 175:7 176:15,19 178:7 184:13,23 185:4 196:21 198:1 201:23 202:9 205:1 log 26:16 56:18 logged 58:21 104:18 logging 57:6 90:5 login 4:12 125:15 125:19,20,22 logs 156:15,25 157:4 london 2:3,4 5:7 10:3,8 14:3 202:14 long 13:7 17:23 92:23 157:7 longer 27:25 82:6 155:2 178:17 185:6 187:3,7 190:1 look 44:18 63:12 68:5 75:24 78:16 | 96:22 100:3 110:9 115:18 116:16 117:2 142:25 143:8 152:22 172:12 177:6 178:15 looked 113:22 114:3 121:22 143:24 175:8 looking 14:23 19:10,19 42:6 65:4 77:5 116:15 117:11 125:18 174:4,15 179:14 183:14 190:15 192:20 looks 116:22,23 120:13 131:3 142:20 179:19 181:18 loss 150:3,12 lost 168:19 lot 46:20 76:10 78:4 80:7,7,18,20 81:12 100:18 157:21 185:6 love 108:20 luke 154:2,14 lulu 93:18 95:17 95:19 96:5,5,10,20 lweaver 2:20 |
| m | | | |
| macdonell 3:20 5:11 machine 65:11 magically 75:10 mailbox 129:20 main 3:15 127:6 maintained 160:5 major 13:14 41:18 42:12 43:9 | | | |

CONFIDENTIAL

[majority - modifying]

| | | | |
|---|--|--|---|
| majority 74:8 160:17 | materials 11:13 17:8,16 18:12 37:15 | 157:13 | mid 14:4,6 |
| making 45:3 57:18 80:1,13 89:11 97:8 139:12 141:7 157:18 158:17 | math 79:8,11,14 79:16 | meant 37:19 42:25 43:1 82:5 | migrate 172:19 187:18,22 188:14 189:17 194:21 195:10 198:23 199:20 |
| manage 129:21,21 129:24,25 130:5 169:7,8,17 172:2,6 181:6 | matt 3:12 5:23 16:3,5 | mechanism 39:7 42:20 50:21 53:20 54:25 164:21 169:19 171:17 173:9 | mill 3:8 |
| managed 172:18 | matter 5:9 7:3,11 7:13 15:4 62:1 78:11 98:24 103:8 166:25 | media 190:17 | million 79:3 117:6 |
| management 172:19 | matters 7:1,8 9:13 20:21 21:7 67:17 67:20,22,24 155:17 156:10 | medication 10:2 | millions 123:18,18 |
| manager 13:20,24 116:6 | matthew 2:21 | medications 9:24 | mind 42:14 43:18 47:18 109:5 |
| managing 170:16 | mau 117:6 | melamed 2:21 61:4 | mine 130:1 |
| manifest 98:6 | maus 78:18,21 | member 104:24 105:4,5,6,7,8 | minute 125:13 162:1 189:19 |
| manifested 159:6 | mbuongiorno 3:12 | members 105:15 | minutes 15:16 86:12 153:3 184:17,21,25 185:6 |
| manner 16:22 | md 1:8 | memory 65:7 | missed 76:12 |
| manufacturers 200:1 | mdl 1:7 4:9,11,13 4:16,18 174:3 | mentioned 30:5 56:5 78:15 96:20 109:23 111:13 146:17 148:2 188:21 | mix 122:19 |
| map 123:10,21 | mean 13:8 21:13 22:16 23:5 26:6,8 27:10 31:7 48:24 68:13,18 69:11,20 72:10 73:18,21,22 73:23 74:15 76:23 78:19 80:1,23 87:6 90:4 91:18 118:15 121:18 135:25 143:12 158:24 159:2,4 161:6 179:6 180:24 185:15,17 185:18 190:9,12 | mentioning 148:5 | mixed 164:7 |
| mapping 181:16 | meaning 31:12 80:18 158:3 | mercy 18:23 | mixing 164:11 197:18 |
| mark 18:15,16 71:17,21,24 75:3 133:5,7,11,15 153:12,17 174:1 | means 25:8 32:5 38:5,10 78:1,21 128:11 129:8 | message 4:10 | mmelamed 2:21 |
| mark's 132:6,8,16 132:19,24 | | messaging 11:7 | mobile 22:24 24:19 42:24 56:9 56:13 135:18,23 136:1 194:2 |
| marked 4:6,20,22 4:22 18:17,19 19:7 75:5 92:3,5 103:12 114:24 115:6 125:5 153:20 173:24 176:17 | | met 6:12 | model 91:3 94:7 154:8 |
| master 3:21 6:2,3 7:20 9:10 | | meta 3:18,19 7:7 10:6,8 12:18,19,20 12:20 13:1,9,15 15:3,21 21:6,10,12 24:1 45:10 92:15 169:11,17 170:24 171:18 172:1 173:10 | models 94:7 |
| master's 14:11,16 | | metadata 75:14 133:23 178:8 | modification 33:6 160:6 |
| matches 68:3 | | method 38:3 77:8 77:21 114:12 | modifications 160:8 |
| | | | modified 32:9 158:12 166:15 |
| | | | modify 31:22 173:10 |
| | | | modifying 158:18 158:18 167:22 |

CONFIDENTIAL

[modifying - observing]

| | | | |
|---|---|---|---|
| 169:20 moment 92:8 198:3 202:7 monday 1:20 2:5 5:1 monetization 99:10 money 135:23,24 monthly 78:19,21 78:22 79:1,20 81:21 morning 5:16,24 6:12 61:8,9 move 28:13 33:12 152:19 153:18 155:1 181:8 moved 42:24 movie 108:5,19,21 183:14,15,24 184:2 moving 101:7 multiple 171:14 | 19:13 20:7 21:18 54:3 84:24 107:23 108:13 109:1 110:9 122:3 149:7 152:22 153:23 164:10 167:20 172:12 183:6 needed 13:4 21:18 88:10 166:10 189:3 198:23 200:5 needing 188:14 needs 21:15 negative 188:17 neko 135:15,15,17 135:17,20 net 64:2 66:21 67:8 109:17 151:10,19,25 152:1,11 never 60:6 new 10:25 18:4 19:6 41:7 131:16 167:23 171:8 181:9 183:9 189:18 newsfeed 34:11 35:14,14 127:12 127:24 night 156:13 noise 168:10 noisy 136:5,6,8 non 117:12,15 nonapp 61:15,17 63:4 88:24 89:22 96:13 nonpublic 165:11 nonstandard 165:10 nonwhitelisted 70:7 187:7 | normal 54:19 northern 1:2 notating 205:15 206:4 note 178:8 noted 11:24 12:10 12:12 37:9 202:14 notes 4:15 11:12 12:4,15 152:22,24 153:12,25 154:2 190:16 notice 18:24 19:20 19:23 20:2,5 47:1 61:13 66:1 67:25 87:9 88:21 89:21 151:8,9,17 154:25 noticed 153:24 noticing 5:15 notification 89:2 89:25 90:10 notifications 88:4 129:21,24 notified 88:2,18,24 noting 178:12 184:13 nottingham 14:12 14:17 number 1:25 15:25 17:4 31:23 33:10 34:20 41:20 45:7 46:10 64:24 69:25 71:19 72:18 72:20,22 73:22 75:19 76:5 77:7 78:5,7,10,12,13 80:21 81:6,21 82:11,21 90:2 97:12 98:9 101:14 101:17 113:3 115:8,9 121:7,12 121:16,22 122:1 | 122:15 123:4 124:7,24 125:8 126:8,10,11 127:3 128:9 129:4 130:12,19 132:5 132:12,13 133:9 135:12 136:14 140:8 165:20,20 166:3,5 167:10,13 171:2 174:2,17,19 176:23 177:3 178:25 182:5 187:15 194:11 201:5,18 205:15 206:4 numbers 75:12,12 79:16 117:5 128:17 133:16 134:2,5 |
| n | | | o |
| n 4:1 name 6:14 26:17 26:20 29:18,24 37:3,5 71:9 75:17 182:17 names 15:24 154:4 narrower 22:1 naturally 73:20 nature 46:24 nearly 119:25 necessarily 36:12 36:17 60:14 68:23 80:2,22,23 83:10 90:7 165:25 necessary 53:18 205:14 206:3 need 8:22 11:2 12:4 13:2 18:16 | | | o'neil 4:11 15:6 67:11 92:9,25 93:6,12 94:9 134:15 o'neil's 96:23 133:24 o0o 2:1,7 4:5,24 5:3,5 6:4 202:17 203:1 oakland 2:19 oath 21:10 object 8:14 94:23 142:22 183:11 objecting 8:17 objection 138:17 145:1,19 146:6,18 148:18 175:2 195:16 197:16 objects 183:9 observing 9:11 |

CONFIDENTIAL

[obtain - part]

| | | | |
|--|--|---|--|
| obtain 50:17 56:6 58:10 59:25 60:3 103:21 119:10 137:20 obtained 50:22 59:4 97:18 140:6 140:15 148:16 168:7 obtaining 25:18 79:24 117:20 obtains 140:20 obvious 76:11 78:4 80:8 obviously 68:6 94:20 157:21 occur 150:4 ocean 10:19 october 4:16 174:6 offered 53:1 165:10 190:3 191:10 204:13 offering 167:23 offers 142:18 office 205:11 official 28:11,24 29:1,2 oh 120:24 okay 6:23 7:16 9:6 9:10,20,24 10:9,13 10:24 11:7 12:16 12:22 13:5 14:8 15:23 16:25 20:4 20:10,19 21:12,24 22:12 23:19 25:3 26:22 27:5 29:23 32:13 34:1 35:17 36:14 37:24 40:12 40:23 41:16 42:11 43:8 46:5 48:9,17 48:23 49:12 50:21 51:5 53:14 54:1 | 54:14 57:1 60:18 61:1,19 65:13 67:21 69:18 73:2 77:10 79:2 80:5 83:11,19 85:3 86:18 88:19 89:1 92:1 93:3,10 100:3 101:7,24 102:19 103:2,20 106:16 108:3 109:9,23 111:9 112:25 113:1 114:14,17 115:13 115:18 116:4,8,16 117:2,19 118:2,25 119:8,21 124:5 126:4 127:6 128:16 129:17 134:7,13 135:20 139:4,17,19 141:21 142:7 143:3 146:3,16 147:17 148:1 154:24 156:23 157:12 159:10 160:19 161:23 163:2 165:16 168:6 170:11 172:8 173:22 174:14 176:15 177:18 178:2,7 180:23 184:23 185:9,10 186:6,11 187:11 191:16 198:14,25 201:23 202:9 once 15:15 142:7,7 142:13 ones 58:10 180:24 181:5 | ooo 1:3 6:9 open 105:12 operate 166:10 operated 71:16 201:5 operating 195:21 196:2 operative 46:1 operator 5:6 61:1 61:5 114:17,20 153:6,9 202:12 opt 83:16 86:14 option 86:25 order 18:1 34:11 51:2 53:6,16 57:18 58:15 70:22 164:4 185:5 186:21 191:9 195:22 organization 48:21 organize 175:20 original 39:17 41:12 42:16 71:1 85:21 87:21 89:5 120:6 154:21 159:17 169:3 205:10,21 originally 40:17 65:6 90:16 98:16 163:14 output 131:24 outset 72:2 outside 140:6 142:15 overlapping 39:15 162:18 overview 126:5 owned 23:14 92:18 93:22,23 160:4,5 | owner 54:9 owns 94:6 p p.m. 2:4 5:2,7 61:2 61:3,3,6 114:18,19 114:19,21 153:7,8 153:8,10 184:14 202:13,14 package 194:9 page 3:8 4:3,7,21 20:6,7,8,9,10 50:13,14 63:10 75:16 79:12,17 93:1,6,11 100:4 104:4,9 108:20 115:19 125:15 126:5 128:16,17 128:18,19 178:16 178:19 181:9 205:15 206:4 207:4,7,10,13,16 207:19 page's 104:11 pages 104:1,2,8,17 205:14,17,17 206:3,6,6 palo 3:8 papamiltiadis 4:8 29:20 paragraph 75:24 75:25 paragraphs 20:22 parallel 155:11 parse 92:16 part 10:10 13:16 32:25 41:21 70:16 71:13 72:1 100:1 119:6 121:8,25 123:20 125:21 126:1 144:22 151:9 154:7 |
|--|--|---|--|

CONFIDENTIAL

[part - permissions]

| | | | |
|--------------------------|---------------------------|--------------------------|-------------------------|
| 174:12 175:6 | 150:5 152:5 | pending 8:25 | 206:7 |
| 177:2 195:19 | 159:13,16 160:9 | people 15:2,11,15 | periods 88:16 |
| 196:5 | 160:23 164:3 | 15:25 28:23 29:13 | 166:25 |
| particular 6:21 | 166:21 167:8,13 | 29:16 38:16 44:25 | perjury 203:2 |
| 20:21 44:2 67:2 | 167:24 168:4,7 | 49:8 59:5 60:3,14 | 205:17 206:6 |
| 71:7 82:24 86:21 | 189:13,22 190:8 | 61:23 62:19,21,22 | permission 28:15 |
| 89:16 94:19 95:23 | 190:10,10,13,16 | 62:25 64:24 67:6 | 28:18 30:7,9,14,21 |
| 131:1,12 148:17 | 190:25 191:7,12 | 67:9 71:14,16,19 | 31:2 33:13 34:13 |
| 149:21 156:16 | 191:20,24 192:25 | 75:19 91:18,22 | 35:8 95:2 97:18 |
| 157:1,6 158:1,3 | 193:25 195:14,19 | 95:25 105:8,10,13 | 102:10,15 103:10 |
| 176:14 189:22 | 200:16 | 107:10,12 108:1,8 | 108:8 163:8 167:5 |
| parties 23:14,17 | partnership 13:20 | 116:9 117:11,16 | 180:9 181:1 |
| 38:15,17 39:9 | 136:15 143:10,11 | 117:24,25 118:7 | 185:21 191:3 |
| 44:3 45:16 47:4,6 | 143:13,14,16,19 | 127:20,24 146:11 | permissions 27:5 |
| 47:10 48:16 49:2 | partnerships | 150:11 154:4 | 27:16,17,18,21,24 |
| 49:10 52:10,17 | 13:17 48:18,21,24 | 155:16 161:13 | 28:3,6,11,20 30:23 |
| 54:24 61:23 76:8 | 48:25 49:4,8,9,20 | 166:16 187:12 | 30:24 32:13,19 |
| 77:12 83:18 94:4 | 136:19 143:20 | 188:18,25 192:2 | 33:1,4,17 55:13 |
| 94:8,17 128:14 | 150:25 | 194:16,17 195:3 | 63:21 72:22,25 |
| 146:5 198:7 | parts 175:4 195:18 | 196:11,17 | 73:2,9,11,12,15,16 |
| 204:18,21 | party 5:15 23:3,6 | people's 62:17 | 74:4,6,14,17,22,24 |
| partly 100:22 | 23:20,24 26:16,20 | 117:10 | 77:13 81:25 82:8 |
| partner 13:18 | 32:2 50:11 51:8 | perceive 97:13 | 82:24 84:6 87:16 |
| 48:13 52:5,25 | 53:6 55:18 84:16 | percent 116:2,14 | 87:18 88:6,7,10,13 |
| 53:21 55:2 56:6 | 91:12 139:9 | perform 142:17 | 89:25 94:22 96:9 |
| 83:2 136:12,17,23 | 148:16 164:16 | performance | 96:11 97:8,11,20 |
| 137:10 150:4,7,10 | 197:10 198:9 | 143:7,25 145:21 | 98:1,23 99:22 |
| 150:12 157:14 | party's 52:21 | performing 143:1 | 100:1 101:8,10,12 |
| 158:15 159:19 | passed 182:18 | 143:9 | 101:15,18,21 |
| 160:1,1,5,12 | password 26:17 | period 21:21,25 | 111:16 112:2,4,5,8 |
| 162:21 163:6 | 26:20 | 32:25 39:11,14 | 112:10,11,16,16 |
| 165:18 190:15 | patience 46:22 | 40:25 45:13,21 | 112:20 113:25 |
| 192:8,24 196:1,25 | pause 39:13 202:7 | 51:10,21,25 64:3 | 119:5 121:2,6,8,23 |
| 198:9 199:4 | payment 134:10 | 80:13 84:1,7,20 | 122:6,13,16,21,24 |
| partner's 55:7 | 144:9 | 88:5 112:2 120:22 | 124:10,14,15,23 |
| partners 48:10,12 | payments 134:10 | 131:12 135:22 | 124:25 129:4,11 |
| 49:15 52:2,4,11,16 | pdf 205:12 206:1 | 151:3,12 152:13 | 129:12,18,19 |
| 52:23 53:8 54:16 | pearly 170:10,13 | 154:10 160:25 | 130:11,13,20 |
| 55:25 69:12,14 | 170:16,20 | 166:5,23 169:25 | 131:4,8,19 132:2,2 |
| 98:24 136:10 | penalty 203:2 | 186:8 192:9 | 134:14 135:8,9 |
| 137:3,8 149:4 | 205:16 206:5 | 204:15 205:18 | 141:3 148:24 |

CONFIDENTIAL

[permissions - possible]

| | | | |
|--|---|---|--|
| 149:1,6,8,14,17,18 149:21 150:2,6 156:15 157:1 158:2 159:7 160:21 162:9,14 163:7,11,17 164:17 168:4,8,12 168:15,20 169:2 172:10,15 173:15 173:21 176:23,25 177:3 178:16,22 178:24 179:1,3,3,9 179:16,17,20 180:1,8,13,16,21 180:21,24 181:2,4 181:22 182:4 183:4 185:17 187:3 188:5 189:14,24 190:8 190:23 192:5,14 193:21 194:11 195:22,24 196:3,8 196:9,20 197:19 197:19,21 198:5 198:10,16,18,22 199:6,10,16 200:10,24 201:1,8 201:11,16 perms 128:25 129:1,2,6,8,10,14 130:14 person 50:12 70:21 71:7,9,12 89:19 106:17,20 106:25 107:20,21 111:7 137:19 142:3 154:17 176:10 204:7 person's 35:14 89:19 182:17 183:10 | personal 64:18,20 65:18,21,24 66:11 66:12,15 76:22 82:4 145:5 146:19 148:6 155:23,24 156:3,25 perspective 28:2 99:16 200:19 pertains 109:15 178:6 phone 11:9 53:17 53:19 56:8,9 59:1 photos 111:16,18 111:19,21,23 117:11,25 118:6 118:18,20,23 119:1 120:11 179:24 180:1,4,9 180:10 186:20 phrase 52:3 68:13 68:20 69:18 77:4 77:17 78:3 89:15 160:1 phuntso 3:9 5:23 physical 55:21 picking 33:16 picture 182:18 piece 67:18 141:10 141:18 pin 147:18 197:9 place 35:23 44:15 82:22 109:24 204:8 placebo 88:4 places 181:18 plaintiff's 19:20 plaintiffs 2:3,10 5:17 6:1,15 17:17 17:25 18:25 planning 11:25 | platform 13:17,24 23:9,12,16,18 24:7 24:8 27:25 30:21 30:23 31:15,17,21 31:23 32:8 33:3,5 34:2 37:23 39:8 39:17 42:18,21 43:23 45:11 47:5 47:11 48:5 49:7,9 49:11,16,19,21,24 50:23 53:1,9 54:2 54:6 55:4,6,6,10 56:14 62:10 65:6 65:9 69:21 70:17 71:2,14,15,18,20 71:22,23 72:1,5 74:9,18 82:23 83:4,17,23 84:23 85:22 86:4 87:20 89:6,18 90:16 91:12 97:15 98:19 99:5 100:2 112:3 112:18 113:12,19 114:5 116:7 121:5 122:16 123:22 124:8,9,22 125:3 125:20,25 126:18 126:21,24 127:1,4 127:15 129:5 136:19 138:5,7,9 138:24 139:18,25 140:9 143:19,21 143:22,23,25 144:2,4,5 146:8,11 146:23 147:1 154:6,14,19,22 156:6 157:4 158:5 158:11,19,22 159:16,19 161:6 161:11,12 163:24 164:22 165:10 | 167:7 168:2 169:21 172:5 173:4 174:7 177:13 189:18 194:3 195:6 201:4 201:15,15 platforms 3:18,19 12:20 24:1 52:21 play 186:12,24 pleadings 16:9 please 5:14,15 7:25 8:16,22 12:9 47:25 156:2 157:13 plenty 160:19 plow 153:1 plug 50:4,16,19 51:7,11,12,16,20 51:24 plus 192:2 point 8:22 9:12 88:19 95:6 112:14 113:15 135:9 142:6 policies 63:25 64:13 138:5,7,16 138:19 139:3,18 policy 115:2,19 116:10 120:15 poll 4:11,11 92:9 92:13,14,25 93:7 100:20 poll's 100:3 position 116:5 possible 28:22 38:15 60:5 81:1 86:6 89:23 90:1 100:25 116:25 118:3 141:13 150:11 156:20 168:2 190:4 |
|--|---|---|--|

CONFIDENTIAL

[possible - provide]

| | | | |
|--|---|---|---|
| 196:16 post 63:10 102:13 102:13,18 115:1 116:16 117:3 119:25 120:7 141:14,15 182:19 posted 35:15 115:24,25 116:3 141:14 142:3 178:1 posts 73:6 102:2,4 102:5,8,9,11,14,16 102:21 103:5 104:10,11,12 105:6 108:20 111:16 113:25 117:11,25 118:5 118:17,20,22 119:1,20 120:7,10 potential 94:24 121:13 150:12 potentially 26:18 78:13 89:8 135:7 pre 39:10 precise 109:18 162:24 184:6 precisely 111:2 138:20 premise 32:14,16 71:1 85:22 86:4 89:5 90:18 preparation 66:3 66:25 67:3,6,15 96:6 121:9,11 147:4 148:4,11 150:21 152:6 156:8,20 174:12 preparations 66:18 155:21 prepare 11:12 16:10,24 17:9 | 29:3 37:15 64:22 155:7 156:12 prepared 11:15,18 20:22 64:7,8 67:19 127:16,19 133:8 138:18 145:4 155:4,8 156:14 preparing 66:9 155:9,10,17 present 3:17 15:19 15:22,24 20:24 21:22 32:23 163:3 presentation 4:12 126:7 presented 16:22 18:20 115:7 pretty 184:24 prevent 83:17 142:1,15 199:20 prevented 141:24 previous 32:6 46:16 51:23 65:15 111:17 135:8 170:3,7,9 182:10 182:10 previously 4:20,22 4:22 6:20,24 18:17,19 98:17 111:13 114:23 115:6 147:15 149:22,24 164:20 182:3 primarily 42:21 66:24 139:25 156:4 188:13,17 193:24 primary 38:13 139:24 173:6 193:25 | prior 19:6 73:16 88:8 120:25 121:3 181:23 priorities 127:7 privacy 1:5 5:9 63:25 64:13 91:9 91:13,15 103:18 141:11,16,22 205:4 207:1 private 37:11,16 37:20,25 38:2 68:25 69:4,6,9,11 69:21 70:7 161:25 162:2,5,8,12,13 164:5,15,19 165:1 165:16,20,21 166:19 167:2,4,16 168:8,24 174:7 191:13 privilege 94:24,24 proactive 81:24 probably 16:1 20:20 150:24 152:21 162:15 185:1 problem 176:3,6 problems 41:25 42:3 43:3,9 procedure 19:22 205:19,20 proceed 164:9 proceedings 5:4 produced 18:9 65:1 67:5 147:15 product 13:24 24:11,11,14,15 25:1 51:6 57:15 65:23 98:20 116:6 135:17 136:2 143:5,15,22 167:11 | products 50:10 142:18,25 143:3,6 143:7,10,11,13,17 143:25 144:6 145:6,21,22 167:23 173:11 profile 1:6 5:10 182:18 205:4 207:1 profit 44:9,22 profits 64:2 66:21 67:8 151:10,20,25 152:2,11 programmatically 38:19,21 programming 25:7 prohibited 138:20 project 29:14,16 29:21 pronounce 16:4 29:18,24 proper 73:13 proposed 135:10 146:9,24 147:2,6 147:21 proposing 175:18 pros 90:24 protect 100:6 126:9 128:9,12 protection 126:10 provide 17:7 25:14 27:13 35:11 38:8 50:8 53:7 69:12 80:18 85:3 85:5,6 86:7 89:4 102:7 104:25 105:20 107:11 108:3,10,18 110:20 113:5 132:23 182:6 |
|--|---|---|---|

CONFIDENTIAL

[provide - reason]

| | | | |
|--|---|---|--|
| 190:21 191:9 192:21 193:3 194:25 provided 4:14 32:18 47:2 52:23 60:13 61:22 62:15 69:9 72:8,14 80:17 101:9,18 106:24 107:3,3,22 110:21 116:9 123:4,14 124:5 127:5 140:23 148:8 152:17 153:13,13 179:3 180:14 189:17,23 193:6,20 197:6 204:15 205:19 206:8 provides 78:17 106:16,19 110:1,6 113:9 178:13 185:25 providing 49:5 63:4 87:11 98:11 98:23 99:4,20 118:24 185:13 188:25 190:7 195:13 197:14 proxy 89:14 ps12n 4:12 125:16 125:24 public 112:21 125:1 140:16 163:16 168:17 187:16 196:3 publicly 36:9 104:13 135:10,10 140:10 149:5,15 151:21 152:3 162:22 163:6,8,12 163:13,17 167:12 | 168:7 172:14 173:15,20 180:18 180:18 186:17 188:16 189:13,23 190:8,22 published 36:5 106:14 pulled 78:25,25 purpose 63:18 68:10 70:11,14 137:17 138:3 161:20 purposes 20:24 69:19 140:21 pursuant 19:21 22:24 put 75:1 93:23 114:22 153:18,24 159:1 186:3 193:1 198:3 pwangdra 3:9 q qualification 35:22 quantify 135:12 queried 81:2 question 7:24,25 8:10,16,18,24 9:1 11:23 12:24 13:3 31:3 32:15 33:20 35:5 37:13 44:12 44:18 47:15 48:10 52:7 56:11 58:17 59:3 66:8,10 68:15 69:3 84:24 85:11 92:22 95:6 95:7 99:12,14 109:3 110:8 111:3 112:15 114:6 120:24 132:15,25 134:5 139:5 | 140:19 145:3,10 145:14,25 146:1 149:16 150:23 151:16,16 152:15 163:10 169:3 175:4 183:12 184:1,4 185:10 187:1 193:9,15 196:5 198:13 201:7 questions 8:2,9,14 9:5 11:5,18 12:1 14:24 21:24 25:4 46:19,23 52:8 61:12 66:23 70:9 82:15 101:8 112:24 115:3,20 116:10,19 125:14 130:24 152:23 153:16 156:7,19 164:8,12 quick 76:3 quickly 115:10 152:22 184:25 quite 70:10 179:7 quotes 93:23 r r 207:3,3 r&s 206:1,9 raised 94:21 ran 50:14 59:19 113:23 range 31:18 41:15 42:3 43:15 44:4 48:14 49:1 69:5 88:9 91:10,14 135:7 137:13 138:5 160:14 ranging 49:2 rate 81:20 82:1 95:23,24 165:4,5 | 165:24 166:1,2,3,7 166:11 rationale 188:7 194:18 rblume 3:6 reach 151:6 reached 120:14 reactive 81:24 read 17:20 33:13 33:22,25 34:5,10 34:25 35:7,13 44:16,19,25 63:14 64:4,5,19 66:5 67:1 79:5 92:21 96:3,5,6 100:15 118:9,10 123:6 126:13,14 129:20 129:20,20 130:8 135:5 155:2,4 174:17 177:25 181:25 183:8,16 183:18 readily 124:16 reading 79:16 81:19 96:19 97:10 117:22 120:12 174:18 205:23 206:9 realize 91:19 realized 61:12 really 7:18 29:18 54:15 75:9 95:6 103:8 111:5 145:24 192:14,18 reason 43:18 44:7 44:20 76:11 78:4 80:8 81:17 127:21 139:24 196:11 199:2,18 200:7 207:6,9,12,15,18 207:21 |
|--|---|---|--|

CONFIDENTIAL

[reasonable - render]

| | | | |
|---|---|---|--|
| reasonable 63:7 77:3 131:24 | 22:7,14 61:2,6 114:18,21 153:6 | 93:5 94:9,13,14,18 95:10,12,15,18 | related 27:6,7,10 32:13 79:24 96:8 |
| reasonably 67:17 67:22,23 68:1,4 156:9,11 | 153:10 155:3 169:9 178:8,12 184:14 196:23,23 | 97:2 100:23 110:4 110:14,25 117:15 117:16 120:22 122:23 136:12 | 98:22 139:4 144:5 148:25 150:2 151:20,25 152:2 160:17 166:17 |
| reasons 41:10,15 41:18 43:15 81:6 82:14 103:21 192:11,20 193:2 195:9,12 196:17 197:13 198:20,24 200:15,21 201:8 201:10 | 202:13 red 81:5 reduced 204:9 refer 11:21,25 12:24 23:20 28:15 29:25 30:15,21 38:2 70:3 73:14 77:24 78:7 80:22 94:5 97:12 107:23 108:13 109:1 126:16 133:16 135:21 157:22 158:8 159:4,20 162:8 | 139:23 142:5 154:10 157:17 160:25 163:24 167:5 169:1 175:17,22 181:4 187:2 196:19 refers 30:24 31:15 34:17 48:11,14,25 62:8 86:12 95:16 95:16 104:2,22 116:17 125:17,19 125:22,24 126:17 134:9 135:9,17 136:6,8,11 166:3 171:3 181:2 | 192:13 201:16 204:20 relates 1:8 relating 7:3,7,10 15:3 63:25 64:2 64:13 149:11 151:11 152:12 relationship 52:18 126:18 relationships 24:25 34:18 48:14 49:1,3 128:15 relative 81:21 relatively 179:19 released 205:21 relevant 97:10 relied 187:25 relying 66:24 156:4 189:6 |
| rebuilding 191:5 recall 7:1,5,11 9:25 16:12 28:19 29:15 63:6 89:15 92:15 95:20 96:19 107:1 108:11 119:24 120:9,17 122:5 133:4 134:5 146:13 147:9 148:5,6,9,19 150:1 150:8,13,16 154:1 174:10,11,22 179:12,13 188:24 | referenced 4:20 205:6 references 96:5 referred 27:15,18 28:21,22 34:22 41:7 48:2 73:12 89:14 122:20 132:11 134:12 135:6 158:4 175:13 referring 12:23 23:21,23 24:16 25:16 27:1 32:21 35:21 47:16 49:20 53:12 54:12 73:5 75:9 76:19,21,24 77:6 80:21 82:17 82:19 86:11 88:8 | refresh 19:12,13 65:7 regan 3:13 5:22 regard 20:17 49:4 65:19 67:16 94:22 112:1 136:7 156:8 190:19 193:20 regarding 64:23 103:6 152:24 regular 24:12 55:4 70:6 187:19 190:3 191:4,15 194:23 regularly 73:24 regulated 201:17 regulatory 93:16 94:11,19,21 95:8 95:11 192:8 195:6 relate 31:20 112:24 | remains 1:8 relating 7:3,7,10 15:3 63:25 64:2 64:13 149:11 151:11 152:12 relationship 52:18 126:18 relationships 24:25 34:18 48:14 49:1,3 128:15 relative 81:21 relatively 179:19 released 205:21 relevant 97:10 relied 187:25 relying 66:24 156:4 189:6 remainder 65:19 remember 11:24 67:12 95:22 96:2 119:24 157:8 192:10 remind 7:17 remote 1:16 2:2,9 3:2 11:1 204:10 removal 81:24 124:25 180:20 removed 84:9,15 168:5 178:23 180:6,7 199:17 removes 179:15 render 50:12,19 50:25 51:2,2 |

CONFIDENTIAL

[render - running]

| | | | |
|--|--|---|--|
| 57:19 58:15 106:1 106:13 186:22 rendered 50:20 144:7 repeat 44:12 47:14 62:1 66:10 200:13 rephrase 95:4 replaced 170:3,14 170:16 replacement 191:5 replicate 194:2 report 143:18 reported 1:24 145:18 reporter 5:13 7:9 7:22 17:12 30:1 204:1,2,15 represent 27:8 130:3 132:12 representative 57:19 represented 137:12 180:22 represents 93:8 reputation 98:15 request 12:8,12 17:13 51:3 121:5 124:23 175:23 198:15,19,21 199:9,15 requested 7:9 17:12 74:7,10,11 204:13,14 206:1,9 206:10 requesting 124:10 130:20 131:4,8 requests 77:7 78:18 79:3,6,19 80:2 81:11 99:2 129:20 | require 49:24 required 33:6 76:8 76:13 187:18 195:7,22 requires 99:3 109:3 research 45:20 reshare 127:25 resolve 43:9 resonate 130:16 respect 17:10 44:1 114:9 responded 103:13 responds 102:12 response 20:2 responsibilities 13:14 rest 39:3,7,16,19 restate 8:1 35:5 rested 85:22 result 53:3 56:19 57:7 127:23 141:13 195:5 resulted 179:10 resulting 91:3 retentive 98:8 retrievable 78:13 retrieve 105:23 retrieved 105:23 return 62:25 107:9,25 205:17 206:6 returned 107:15 109:8 111:20 113:13 182:11,15 returns 142:9 revenue 64:1 66:20 67:8 137:9 143:4,8,18 146:12 147:22 148:7 150:4,13 151:10 | 151:19,24 152:1 152:11 revenues 147:7 review 16:8,15 17:21,22 35:19 112:21 115:2,19 116:10 204:12 205:8,10,13 206:2 reviewed 16:13,23 16:24 17:16 28:19 33:10 37:15,15 64:25 67:4 82:20 147:3 148:10 152:16 196:17 reviewing 17:24 28:18 66:7 93:2 100:17 147:9 rich 86:2 97:21 98:2 right 7:14 10:6 12:5,18 23:9 35:4 35:12 40:15 47:4 47:13 48:3 52:23 56:9 57:12,25 58:11 59:23 60:4 62:17 68:7 69:13 75:3 78:20,23 79:11,14,14 80:11 80:16 83:3,14,24 84:4 86:10 88:15 90:14 93:7 94:22 95:9 96:9,16 101:4,20 102:3,20 103:7 104:16 105:11 114:10 115:3 119:3 120:21 121:2,10 121:17 122:2,11 122:17,21 124:6 124:13,14,20 125:9 129:23 | 130:11,21 131:5 134:25 138:4,16 139:22 140:7 157:19 160:23 162:23 163:22 165:5 166:22 175:21 176:24 177:14 178:5 182:8,25 188:6 191:17 192:16 193:8 197:19 198:17 202:6 ring 3:19 168:9 169:10,11 risk 192:8 195:5 risks 188:11,21,23 rmr 1:24 2:6 road 3:8 rob 5:20 16:2 19:7 142:20 robert 3:6 rohrback 2:11 5:17,19 6:15 rolling 60:23 room 115:11 rose 3:19 168:9 169:11 ross 3:11 rough 40:1 roughly 82:20 rows 130:4 rule 19:22 rules 7:18 138:1,2 206:8 run 22:17 55:19 55:20,21 81:13 101:24 106:6,8,9 106:11 runner 106:5 running 42:25 56:20 57:15 |
|--|--|---|--|

CONFIDENTIAL

[runs - sharing]

| | | | |
|----------------------------|--------------------------|----------------------------|----------------------------|
| runs 106:7 | scrolled 93:3 | 89:13 91:1,1 | set 16:14,16 17:19 |
| résumé 13:13 | search 36:25 | 96:20 127:11 | 27:3,17,24 28:6,19 |
| 40:13 | 85:10 150:22 | 146:7,9,22,25 | 29:11 31:15 35:23 |
| s | 190:17 | 148:25 149:10,24 | 36:1 47:8 50:3 |
| s 207:3 | searching 36:22 | 150:20 157:5 | 52:16 54:5 59:18 |
| sadly 10:11 | seattle 2:12 | 159:10,12 174:12 | 62:9 67:4 73:11 |
| sangani 15:8 | second 7:4 19:20 | self 170:13 | 82:25 85:20 86:12 |
| satisfy 46:11 80:17 | 44:17 66:5 92:25 | sells 139:8 | 89:1,17 90:17 |
| save 93:4 | 93:5,11 130:18 | send 90:10 | 105:24 106:19 |
| saw 148:2,3 | 147:19 196:5 | sending 81:15,18 | 108:1 129:15 |
| saying 7:23 22:8 | secret 105:13 | sense 44:17 45:17 | 138:6 155:16 |
| 79:13 86:25 | see 18:24 19:2 | 62:4 197:22 | 166:7 168:12 |
| 119:10 131:7 | 20:13,14 44:16,18 | sensitive 25:13,20 | 171:3 173:1,11 |
| 150:17 193:18 | 50:15 57:9 58:2,8 | 25:25 26:2,5,7,12 | 180:5 183:5 194:3 |
| says 19:11 78:2 | 61:19 62:19 70:5 | 26:14,19,23,24 | 195:21 196:2 |
| 79:4,11 80:9 | 70:25 71:3,4 | 27:2,4,21 28:4,4,9 | setting 84:2,25 |
| 93:12 94:10 96:23 | 75:23 79:12 85:25 | 28:10,16,21 29:2,5 | 86:7,17,24 100:7 |
| 115:19 117:3 | 89:9 90:19 92:8 | 29:5 201:24 | 100:13,22 103:18 |
| 125:15 128:25 | 92:11 93:19,20 | sent 16:14,19 | 141:22 |
| 130:19 178:22 | 100:8,10,11 | 17:17,19 90:1 | settings 42:20 84:2 |
| 181:18 183:24 | 102:24 105:15 | sentence 183:16 | 84:9,15 85:8 |
| scale 132:1 | 109:25 115:16,21 | separate 17:2 | 86:12 141:11,17 |
| scattered 174:20 | 117:7,8 122:3,22 | 33:18 55:23 70:9 | seven 119:25 |
| schedule 185:7 | 125:10 128:20,22 | 123:1 175:3 193:8 | severely 194:20 |
| 201:25 205:10 | 129:24,25 130:5,7 | september 4:8 | shaking 8:4 |
| school 14:10 | 130:12,22 133:2 | 13:10,21 40:22 | share 86:9 87:10 |
| scope 130:25,25 | 151:13 152:7,23 | 48:21 75:20 | 88:20 90:14 91:4 |
| 138:17 145:1,19 | 160:1 174:8 | 154:15 | 106:8 127:10,22 |
| 146:6,18 148:18 | 176:11 177:9,10 | series 9:5,6,7 17:2 | shared 38:11 53:5 |
| scoped 194:12 | 177:19,21,22 | serve 81:11 99:1 | 53:6 65:2,3 83:18 |
| 201:3 | 178:18,20,24 | 116:8 | 86:15 89:11 90:20 |
| screen 11:9 18:22 | 181:11,19,20 | served 18:25 | 91:11,19,25 94:3,8 |
| 19:10,12,14 20:8 | seeing 45:6 58:25 | server 42:22 55:20 | 94:16 102:21 |
| 63:11 75:11 92:11 | 63:6 89:15 115:4 | servers 50:20 | 141:21 |
| 100:11 115:4 | 115:13 116:1,2 | 142:11 | shares 52:9,12 |
| 116:2 117:8 | 131:10 146:13 | service 63:24 | sharing 61:15,18 |
| 125:11 128:20 | 148:19 150:1,8 | 64:12 | 63:17,22 64:1,3,14 |
| 133:9 151:14 | seeking 88:22 | services 52:21 | 68:7,9,11,14,18,20 |
| 156:1 | seen 18:4,7 19:23 | 171:1,2 188:25 | 69:7,10,19,20 70:4 |
| scroll 156:1 | 33:21 48:13 61:14 | serving 99:3 | 70:6,12,14,16 71:6 |
| | 63:3 72:3 73:4 | | 71:10 72:1,8,11 |

CONFIDENTIAL

[sharing - specifically]

| | | | |
|---|---|---|---|
| 82:25 83:22 84:21 85:18,19 87:14 91:6 122:2 123:19 123:20 124:20 131:1 140:18 149:5,6,8 151:11 151:20,21,25 152:2,3,4,12 154:1 154:7,22 158:25 159:3,5 179:4 180:17 sheet 75:13 shepherd 154:2,14 sheryl 133:11,15 sheryl's 133:12 short 13:18,19 shorthand 204:2,7 show 18:16 123:6 123:23 showing 75:17 shows 132:7 shrink 130:2 side 11:9 42:22 sign 205:16 206:5 signal 25:11 signature 204:24 205:21,23,23 206:9 significant 72:8 125:2 significantly 192:6 similar 51:22 103:3 111:25 170:4 171:25 simon 1:17 2:2 4:16 5:8 6:5 203:8 205:5 207:2 simon's 4:15 simple 85:22 86:3 90:17 193:16 | simplification 125:25 126:11 simply 36:7 200:14 simultaneously 39:11 single 16:25 17:1 113:9,16 172:9 180:15 sir 10:18 11:19 16:8 21:20 24:22 64:17 sit 139:2 sitevars 173:8,9,15 173:18 situation 60:2 63:3 sixth 128:18,19 skim 125:14 skipping 117:5 slide 125:15 126:5 126:6 128:17,20 128:22 129:3,5,17 130:9,12 131:22 132:3,4 133:7,19 135:9,12 slightly 18:10 slipcover 75:13 small 144:24 185:11 smith 3:13,13 5:22 social 24:23,24 34:14,16,21,22,25 35:8,17 50:3,15,19 51:7,10,12,16,20 51:24 70:19,23 86:2 97:21 98:2 98:10 106:22 107:3,4,5,10,13,18 108:7,22,24 109:2 109:5,11,19 110:10,12 137:25 | 140:1 146:5 181:15,22 183:7 184:4,7,11 193:22 software 200:4 sole 66:2,11,12 solely 137:19 139:10 solutions 205:7 solve 41:25 42:4 42:13 43:4 176:3 176:6,8 solved 43:11 somebody 107:8 somewhat 81:5 193:10 soon 12:6 sorry 14:14,15,16 16:5 19:7 29:1 35:5 39:13 44:13 46:3 47:12 50:6 59:10,11 61:25 66:9 79:10 94:25 95:24 99:11 101:5 101:6 112:13 121:20 134:17,20 135:8 138:18 142:20 149:22,23 151:1,6 164:6 165:7 169:10,11 188:19 189:15 sort 9:25 11:2,8 109:16 sound 9:8 sounds 9:9 86:5 source 36:19 66:2 109:24 space 9:15 154:16 speak 14:25 15:5 21:6 29:13 122:12 138:19 156:22 | speaking 30:19 50:1 100:20 195:3 special 3:21 6:2,2 7:20 9:10 specific 11:24 14:24 25:3 27:3 35:20,25 37:5 38:3,25 39:20,24 41:10 46:20 48:7 49:17,18 53:13 54:4 55:9 57:13 59:14 71:9 73:11 87:5 88:8,13 95:11 96:20 104:18 108:11,15 109:22 111:1 112:10 122:3 123:11 138:6 139:15 145:24 146:1,13 148:9 149:7 150:9,10 157:16 159:18 161:1 166:15,23 176:1 179:22 specifically 14:14 16:12 27:23 30:19 31:19 41:16 45:18 46:25 54:12 61:18 69:9 76:19 77:24 78:8 82:3 84:8 95:14,20,23 96:13 99:24 100:9 105:25 110:3,9 123:10 135:8 144:17 148:20 149:1,17 150:1 154:21,23 160:2 161:16 163:24 164:15 165:13 168:11 169:1 172:4 180:3 181:2 |
|---|---|---|---|

CONFIDENTIAL

[specifically - tab]

| | | | |
|--|--|---|--|
| 182:1 187:2 188:3 193:21 198:17 specificity 45:24 166:25 specifics 22:4 62:1 74:1 96:3,4 99:14 103:8 107:24 109:1,7,19 122:11 154:13 157:8 specified 21:7 164:23 190:1 specify 21:25 38:25 43:6 47:14 107:7 speculate 108:15 spend 135:24 144:5 spenders 135:16 135:20 spent 17:23 65:4 135:22 spirit 118:4,16 119:9,11,22,23 spoke 15:2,6,11,15 64:24 67:6,9,13 152:16 189:18 spoken 14:18 44:25 67:11 spreadsheet 76:4 130:19 srr 63:24 64:12 stack 16:19 stamp 115:16 standard 31:11 32:8 33:7 54:22 160:6 165:15 166:7 167:21 187:23 194:6 196:12 standpoint 86:6 99:10 | stands 25:6 start 22:19 32:14 34:7 42:7 74:2 97:23 144:24 158:14 163:20 185:11 198:13 202:10 starting 46:7 70:17 88:12 116:17 132:6 169:14 starts 40:25 state 205:9,12 stated 204:8 statement 65:8 80:18 100:15 123:19 138:24 139:1 178:16 statements 92:24 states 1:1 10:10 100:4 123:24 126:8 stateside 10:14 steinberg 154:3,11 step 85:12 133:1 stepping 82:7 steven 15:7,17 sticker 19:11 stipulation 205:20 stop 83:21 84:21 119:12 185:1,8 198:12 202:2 stopped 150:5 stored 35:24 36:4 story 106:10,14 strange 168:10 strategic 13:20 strava 106:6,7,12 106:18,21 stream 33:22,25 34:5,10,25 35:7,13 | street 2:19 3:5,15 stretch 153:4 strike 84:19 striking 201:13 string 92:23 structure 65:14 89:14 structured 49:3 struggling 32:10 studied 124:3 studies 124:7 stuff 157:11 184:18 202:5 subject 81:23 174:6 subscribed 203:3 subset 70:24 113:12 subsets 84:5 subtopic 65:18 subtopics 46:25 suggest 79:18,21 79:23 93:21 133:25 suggests 78:25 suite 2:11,19 3:5 3:11,15 119:14 summary 4:10 sunrise 78:17,22 79:1 81:1 supervision 204:11 support 14:7 supposed 174:24 sure 8:6 9:15 12:15 13:16 14:24 16:3 22:7,10 25:18 27:1,11,22 27:22 28:9 30:5 32:22 33:19 34:8 35:6,7 36:16 37:3 | 37:14 39:20,24 40:1,6,23 44:13,14 47:13,19 52:8 53:15 54:3 61:8 74:15 76:23 79:13 83:19 85:7 86:18 92:23 94:5,18 95:5 96:21 97:23 99:15 100:16 101:11 112:22 122:10 123:13 134:18 138:25 139:2 144:17 150:17 151:15 153:4 154:15 156:18,19,21 157:18 158:23 161:5 162:19 175:8 184:9 186:25 191:16 199:3 200:14 surface 125:1 196:3 surprised 76:9 77:11,17 78:3,6 80:6 swears 5:13 sworn 6:8 204:4 system 40:9 54:18 65:13 160:15 171:22 173:6 systems 22:20 38:25 39:6 127:17 128:4,6 195:21 t t 207:3,3 t0 136:9,9,17,20 136:21 t1 136:9,22 tab 75:2 92:2 125:4 173:23 |
|--|--|---|--|

CONFIDENTIAL

[tab - think]

| | | | |
|---|--|--|---|
| 176:16 tabs 75:9,11 tag 106:9,14 182:19 taggable 105:16 105:18,22 111:12 113:24 181:14,21 182:11,13,16,21 186:22 tagged 181:18 tagging 106:1,2 186:22 take 7:22 9:1 13:11 60:22 93:14 114:6,14 125:13 144:9 152:21,25 153:2,3 163:9 185:6 190:25 taken 2:2 6:19 84:12 189:10,12 189:21 190:20 204:6 talk 9:15 29:6 73:2 82:5 127:16 149:8 157:20,21 161:25 163:2 177:15 198:5 talked 101:4 106:22 131:14 147:25 155:12,14 155:16,17 161:23 179:7 184:6 187:12 192:23,24 196:17 talking 7:21 9:17 31:19 49:19 57:13 94:12 134:20 162:25 166:24 173:17 191:17 192:1 193:12 194:15,16 196:10 | 198:17 talks 77:23 target 138:12 targeted 128:3,6 targeting 128:7 team 13:17,25 14:2,5,7 49:8,9 65:2 136:15,19 143:14,16,20 150:25 171:12 teams 145:21 technical 25:7 38:10 54:20,25 59:16 86:6 142:14 technically 89:23 90:1 100:14,25 118:3 142:11 184:3 185:25 technologies 24:9 technology 19:13 19:17 63:20,23 64:10 141:7,10,24 141:25 158:24 tell 12:13 47:25 64:22 68:10 116:21 118:15 128:18 133:23 147:11 151:17 192:19 204:4 telling 73:8 tells 19:13 ten 18:1 tenure 154:16 term 24:25 25:10 25:12 28:23 31:13 32:1 37:16,20 40:5 42:10 48:13 48:23 52:1,15 55:24 61:14,16,17 63:7 68:18 72:12 72:13 73:20 | 125:24 157:22,23 183:21 terminology 22:6 22:11 26:25 47:24 56:2,3 101:10 122:19 124:13 129:16 157:19 185:22 191:17 192:17 terms 22:16 24:4 25:14,21 28:4 30:4 42:11 46:22 54:4 63:24 64:12 66:5 94:19 95:14 97:4 112:5 122:13 126:1 139:17 143:24 146:11 162:17 179:20,21 193:16 194:14 200:20 testified 6:8 47:2 98:17 100:12 145:10 149:22,24 164:20 testify 9:21 10:1 20:1,16,22 21:1,3 21:5 22:7 63:15 64:8,23 67:17,20 67:22,24 127:19 145:4 155:4,18 156:10,12,14 testimony 11:14 11:22 15:1 16:10 16:16 17:9,20 21:9 46:20 83:20 86:5,11 96:6 107:2 111:17 147:4 148:4,12 151:10 152:6 162:5 174:13 179:12,13 182:10 | 186:16 197:24 200:14 204:8 texas 3:11,15 text 100:3 texting 11:7 thank 11:11 12:2 14:8,18 16:7 17:5 18:2 24:2,21 33:9 45:12 60:18,24 76:15 85:16 114:15 115:13 154:24 157:12 202:9 thanks 19:16 thereto 204:21 thing 10:22 21:14 43:11 66:11,12 115:5 122:5 124:14 128:9 147:19,24,25 148:5 155:3 166:15 things 11:1 18:4 27:3 47:13 59:15 65:25 69:5 70:1 71:3 73:23 77:23 119:14 121:21 122:14 127:3 143:23 165:1,3 168:12 172:3 179:22,24 180:5 193:8 194:7 198:18 think 6:21 7:7 10:13 11:16 16:17 16:18 21:17 22:5 24:12 25:23 26:14 27:22 28:24 29:9 29:17 32:7,24 42:11 43:8 46:6 49:12 51:16 56:10 |
|---|--|--|---|

CONFIDENTIAL

[think - transcript]

| | | | |
|--|---|--|---|
| 61:25 62:13 65:12 67:13 68:13 69:23 70:10 73:7,8,13 74:8 76:13 78:1 80:20 81:6,14,19 81:25 84:3 86:11 91:10 95:22 106:3 108:12 145:11,20 147:24 155:22 156:3,21 162:4 163:9 164:6 169:2 171:6 175:4 184:10,11 185:7 186:12 190:24 192:14 193:7,15 197:17 202:6 thinking 54:16 159:15 third 2:11 23:3,6 23:14,17,20,24 26:16,20 32:2 38:14,17 39:9 44:3 45:16 47:4,6 47:9 48:15 49:2 49:10 50:11 51:8 52:10,17,21 53:6 54:24 55:18 61:23 76:8 77:12 83:18 84:16 91:12 94:3 94:8,17 128:13 139:8 146:5 148:16 164:16 197:10 198:7,9 thirds 93:11 thought 117:23 118:25 126:18 148:1 thousands 99:21 120:19 121:1 123:17 124:19 | thread 82:4 120:12 three 20:10 77:19 77:20,20,22 154:4 thuman 1:24 2:5 204:2,25 thursday 202:8,11 tier 137:3,3,7,7 tiering 137:11,14 tiers 137:3 till 151:13 time 2:5 5:7 7:21 9:15,17 11:4 13:11,15,18,19 15:10 21:14,20,25 27:25 29:11 32:20 32:22,24,25 39:3 39:21 40:11 41:13 44:17 45:13,13,21 46:5 51:10,20,25 60:21 65:4 66:22 81:12 82:11,17,21 84:1,20 85:16 86:20,24 88:5,19 88:23 90:7,8 93:4 96:12,17 105:4 107:24 108:14 110:4 112:2,8 114:5 120:15,18 120:22 131:2,12 134:20 135:22 136:14,16 139:3 142:4 151:1,2 152:21 153:15 154:10,12 155:9 156:21 157:7,10 159:9 160:25 161:17,21,22 162:24 166:5,23 166:25 168:6 169:25 174:23 | 175:1,10 179:17 180:12 181:24 184:15,19,21 185:1,8,23 186:8 187:16,18,22 188:12,14 189:4 192:2,7,9 194:18 194:21 195:1,7,10 198:23 199:19 200:5,8 201:13,14 201:24 202:4,10 202:14,15 204:8 205:10,18,24 206:7 timeline 104:11 117:10,24 119:20 188:9,16 196:7 199:12 times 6:23 10:12 28:8 45:5 61:22 79:6,19 104:9 161:7 title 101:23 125:18 128:22 today 9:11,22 11:14,19,22 12:16 14:20 15:1 16:10 16:24 23:20 28:17 51:15,17 66:19 93:15 109:21 112:18,20 129:7 139:2 147:4 153:15 157:9 172:25 174:13 176:21 today's 13:12 17:20 token 182:18 tool 37:5 51:19 65:14 113:7,11 169:4,6,6,15,16,16 | 170:1,3,7,9,14,16 170:24 171:15,20 172:1,4,11,12,16 172:20,25 173:5 173:12,16 174:25 175:19 tools 36:24 37:2,4 157:3 top 115:18 116:17 137:3 177:18 178:5 194:3 195:21 topic 20:11,12 63:14 64:19,23 65:20 66:2,23 67:10,16 68:5,6,8 114:16 151:8 152:19,23 155:1,4 155:5,7,8,9,13,15 155:19 156:9 topics 20:1,11,17 20:19,25 21:2,5 22:5 28:14 46:25 63:14 65:19,22 156:22 total 130:19 134:9 144:9 touched 40:4 tough 174:23 tpv 134:7,8,9,16 135:4 track 106:7 tracked 173:15,16 tracking 171:21 175:9 tracks 173:6 train 189:4 transcript 204:13 205:6,8,10,13,13 205:21 206:2,2 |
|--|---|--|---|

CONFIDENTIAL

[transition - unusual]

| | | | |
|---|--|--|--|
| transition 42:1,14 60:20 177:13 186:9 192:22 193:4 194:15 195:15 197:2,12 198:11 treating 90:24 tremendous 74:12 74:16 trial 10:18,20 trick 140:18 trouble 93:17 95:17 true 36:6 203:3 trust 4:18 22:13 43:22,22 98:15,20 126:9,9,15,16,17 177:8 truth 36:19 204:4 204:5,5 truthfully 9:22 try 19:8 29:21 61:19 69:23 70:4 70:5 85:7,14 108:17 130:25 133:1 147:18 185:23 186:11 trying 31:25 41:25 43:4 47:20 49:12 52:9 59:7,7,13 66:16,22 67:12 89:3 99:15 100:19 109:10 111:4 119:24 123:12 130:2 134:19,22 140:17,19 164:13 176:3,6,8 181:5 196:22,24 197:9 200:13,14 turn 20:4,6 83:22 84:22 85:17 | 115:11 126:4 128:16 turning 20:8 85:18 twice 6:25 two 10:11 20:11 20:25 21:2 33:15 34:18,20,22 39:3,5 39:10 77:19,22 93:11 107:4,10,16 108:1 112:24 144:6 146:16 148:2 155:11 175:4 195:18 type 26:1 100:13 102:2 106:1,2 186:22 196:24 types 44:2 57:22 86:14 98:21 127:4 144:1,3 146:16 191:24 193:19 197:4 typewriting 204:9 typically 35:15 36:4,9 49:8,9,20 49:22 50:11 52:24 53:23 55:3 56:15 58:1 59:21 74:11 126:25 143:8,20 162:8 171:8,18 195:25 | 21:20 22:15 23:5 24:13 25:15 26:6 26:22 27:8,9 29:21 30:5,11 31:25 32:11,20 33:9,13 34:18 35:6,25 37:12 40:6,24 42:5 44:13 45:2 47:14 47:17,20 51:24 52:6,9 53:15 59:8 62:8 65:6 68:9 70:2 71:13 72:10 73:18 76:16,23 79:9 83:20 84:10 86:18 99:11,15 100:19 101:25 103:11 109:10 110:3 112:4,11 118:19 121:13,18 123:13 127:20 130:25 131:25 134:11,19,22 140:17,19 143:12 144:13,15,21 149:20 150:17 158:7 162:19 170:5 172:17 175:19 179:6 190:24 192:15 196:24 understanding 17:18 18:14 20:3 20:15 21:8,11,23 24:24 30:13 34:5 34:16,21 37:18,20 39:16,18,19,21 46:21 51:12 52:11 52:15 62:18,24 64:6,16 68:3,19 70:3 77:6 81:19 | 83:15 84:14,18 86:16 87:6 94:1 94:14 96:10 100:21 101:12 102:9,14 105:22 107:14,25 110:2 112:19 114:2,11 117:22 121:21 123:16,21 127:21 128:12 131:6,21 135:6,21 136:22 137:1,2,13,16,21 137:22 139:16,20 139:24 141:4 143:24 147:14 151:23 152:9 154:11 156:17 160:16 170:2,15 172:13 173:5,17 186:2,25 187:13 188:7 189:25 191:11 192:1 195:8 196:10,19 198:14,20 199:18 200:6 201:10 understood 8:10 9:2 17:13 30:2 undertaken 113:16,19 172:19 undertook 121:13 131:15 unexpected 90:9 90:12 unit 200:2 united 1:1 2:4 10:10 university 14:12 14:17 unpack 100:19 unusual 90:3 95:20 195:20 |
| | u | | |
| | u.k. 12:20,20 ultimately 91:6 unable 82:5 132:14 137:5 187:15 unavailable 189:7 unclear 137:5 understand 7:25 8:8,19,20 9:3 15:3 19:25 21:1,2,4,9 | | |

CONFIDENTIAL

[unwind - various]

| | | | |
|--------------------------|--------------------|---------------------------|--------------------------|
| unwind 195:7 | 53:25 56:5,7,15,15 | user's 27:14 34:11 | 140:2,8 144:12,20 |
| update 4:13 76:3 | 56:18,22 57:1,4,8 | 35:16 51:3 55:21 | 182:7 185:18,19 |
| 125:16,19 187:15 | 58:1,12,13 59:15 | 57:2,12,16,17,20 | 186:1,19 191:10 |
| 200:4 201:14 | 59:24 61:15,18,21 | 59:19,25 62:16 | 198:16,19,22 |
| updated 76:5 | 61:24 62:11,22 | 63:1 68:22 74:19 | 199:10,16 |
| upgrade 195:1 | 63:4 70:20,25 | 83:2,9 87:24 88:1 | uses 77:16,17 |
| 200:8 | 71:2 74:12 77:7,7 | 88:20 89:22 91:24 | 138:12 140:8,20 |
| url 116:22,24,24 | 77:8,8,21,22 78:17 | 92:19 98:3 101:22 | 159:15 190:15 |
| 182:17 | 80:2 83:1 85:23 | 102:8,11 103:7,17 | utilization 78:14 |
| usage 157:4 | 85:24 86:20,24 | 103:23 105:9,11 | 143:21 |
| use 21:12 31:13 | 87:4,9,15,22,24 | 105:14,25 106:20 | utilized 127:14 |
| 39:10 47:21,22 | 88:1,16,20,24 89:6 | 107:7 111:18 | 141:25 |
| 49:21,24 53:2,3 | 89:8,10,23 90:19 | 113:13 119:16,20 | v |
| 57:4 59:6 63:8 | 90:22 93:24 96:14 | 119:20 120:2,5,7 | v1 119:6 168:17 |
| 65:13 69:18 72:13 | 101:1,22 102:2,4,5 | 122:9 127:12 | 188:4,5 |
| 79:25 80:3 82:9 | 102:9,14,16,24 | 139:11 140:7,11 | v2 4:17 118:4,11 |
| 84:3,25 86:13 | 103:4,10,11,24 | 179:11 180:11 | 118:16 119:9,11 |
| 100:22 106:5,12 | 104:6,18,24 105:2 | 182:12,12 186:4 | 119:13,15,22,23 |
| 106:17,21 108:23 | 105:6,7 106:7,24 | users 25:1,19 | 120:4 177:8 |
| 108:24 111:4 | 107:6,8 108:5,6,19 | 26:12 30:15,15 | v2.0. 178:17 |
| 117:14 118:5,17 | 109:13,15 111:15 | 34:18,20,20,23 | v4 4:12 125:16,19 |
| 118:19 120:16 | 111:16,16,16,23 | 35:3 38:9,11 | 125:22 |
| 123:14 124:8 | 111:23 112:1,16 | 43:19,25 44:10,23 | valuable 99:9 |
| 131:1,19 136:13 | 113:25 117:17 | 45:8,14 46:6 47:7 | 140:3 144:12 |
| 137:18 138:2 | 118:5,6,7,17,18,20 | 50:22 51:9 53:1,2 | 156:22 |
| 140:5 141:8 | 118:20,22,25 | 54:17,19,23 55:14 | value 96:24 97:11 |
| 142:16 146:10,11 | 119:1 120:10,10 | 55:24 56:1,4 | 97:13,18 98:6 |
| 157:22 161:5 | 122:8 124:16 | 61:21 63:23 64:11 | 99:7,25 118:7,23 |
| 168:3 187:17 | 126:8,15 128:25 | 69:15 72:9 73:25 | 128:25 129:1,2,6,8 |
| 189:4 193:25 | 137:24,25 139:22 | 77:2 78:20,21,23 | 129:10,12,14,18 |
| 195:6,24 196:14 | 140:6,12,22 141:1 | 79:1,7,20 80:24 | 130:11,14 144:19 |
| 196:15 200:23,25 | 141:6,9 142:8 | 81:2,21 83:5,16,25 | 145:15 146:4 |
| 201:14,15,20 | 144:11,19 145:15 | 84:1,13 86:8,13 | varela 15:8 67:14 |
| user 1:5 4:17 5:9 | 146:14 148:17 | 88:12,21 89:3 | variety 157:24 |
| 24:12 26:8,15,17 | 176:10 177:8 | 90:25 91:3 94:16 | 190:14 193:12 |
| 26:19,20 30:24,25 | 180:1 186:22 | 96:13 98:18 100:5 | various 48:15 |
| 31:2 34:7,12 | 188:8,17 192:5 | 107:4,16,16,17 | 124:2 127:4 |
| 35:11,12 36:25 | 194:12,20,25 | 108:1 118:21,24 | 131:14,19 137:2 |
| 43:22 44:2,8,21 | 195:4 196:13 | 121:6,16,22 | 142:25 147:5,20 |
| 47:3 49:5,15 50:9 | 199:20 201:3,12 | 123:18 127:9,9 | 173:11 193:14 |
| 52:12,22 53:3,5,7 | 205:4 207:1 | 128:14 138:13 | |

CONFIDENTIAL

[vast - whitelist]

| | | | |
|---|--|---|--|
| vast 160:16 vc 1:8 verbally 8:3,7 veritext 5:12 115:5 205:7,9,11 version 39:22 40:5 40:7,8,14,16,18 41:6,6,7,8,9,10,12 41:17,17,21 42:1,1 43:5,10,12 45:25 46:2,9,10,15 73:10 73:17 83:7 87:21 118:12,14 121:1,4 121:10 124:15,17 124:22 125:1 131:16 160:21 163:12,13,15,15 176:22 177:2,2,4,5 177:13,14 180:6 180:20 181:10,23 182:2 186:9,10,17 187:4,6,23,24 192:4,22 193:5,7 194:10,10,15,15 194:22,22 195:10 195:11,15 196:6,6 196:7,7,8,12 197:2 197:2,12 199:9,14 200:11,11,21 201:2,3,6,6,19,22 201:22 versioning 43:5 versions 40:24 46:17 65:15 versus 137:7 149:8 video 5:6 61:1,5 73:5 114:17,20 153:6,9 202:12 videoconferenci... 204:11 | videographer 3:20 5:11 videos 111:16,22 111:23 videotaped 1:16 2:2 viewed 127:24 viewer 175:25 viewing 50:13 violate 119:21 violates 118:4,16 119:9 138:15 vis 160:9,9,10,10 161:6,6 189:10,10 visibility 141:12 visible 141:15 176:12 visited 50:25 voice 202:5 volume 74:12 76:7 77:11 134:10 144:9 | 152:25 153:1 156:18,19 158:23 162:18 164:9 178:14 184:22 186:25 191:16 196:22 199:3 201:24 202:2 wanted 35:25 43:7 43:21 136:2 145:13 153:17 172:8 wants 32:12 87:10 washington 2:12 7:6,6 watch 73:6 108:19 watched 108:21 183:13 184:2 watches 108:5 watching 108:9 way 20:6 23:2 25:7 27:23 28:25 30:15 32:4,7,9 38:13 41:24 42:16 49:11 50:24 51:7 52:24 53:10 54:5 54:18,20,22 56:11 63:12 69:7 71:25 73:13 80:15 82:25 83:4,21 84:1,21 85:17,20 87:14 88:6 89:2 90:15 91:20 93:11 95:24 96:10 98:16,25 99:4 100:5,7 102:14 103:13 106:3,13 111:24 111:25 113:10 124:21 138:15 139:10 142:15 144:21,25 158:12 158:22 159:1,5 | 161:13 162:14,20 163:4,10,17 164:23 166:17 167:21 170:16 171:6,24 172:14 173:19 176:5,9 184:6 189:3,5 204:19 wayback 65:11 ways 31:24 38:16 38:18,20 69:25 79:24 82:9 97:12 97:17 98:7,9,11,14 133:5 136:14 143:7 145:22 166:6,19 171:25 we've 17:7 40:4 47:3 101:4 113:3 113:6 126:15 152:20 161:23 176:21 181:13 182:5 183:9 186:15 192:23,23 198:24 200:15 weaver 2:20 5:24 5:25 6:17 web 50:13,14 51:3 55:19 144:8 website 24:16,19 36:3,8,13 50:5,11 50:25 65:5,16 175:24,25 176:12 welcome 61:11 went 6:13 106:11 133:8 191:24 whichever 61:10 whit 164:25 whitelist 157:14 157:22 158:25 159:2 161:11,14 162:23 163:4,18 |
| w | | w 2:14 205:1 wait 8:16 151:13 waiting 176:20 waived 205:23,23 waiving 205:20 walk 107:19 146:16 wangdra 3:9 5:23 want 20:20 29:20 30:5 35:6 39:24 40:6 43:14 44:13 53:14 60:21 86:18 95:3 96:1,2 97:5 100:5 101:11 106:9 108:15 110:16 112:21 122:10 126:22,25 134:17 150:16 | |

CONFIDENTIAL

[whitelist - à]

| | | | |
|--|--|---|---|
| 163:22 164:2,3,14 164:19,21 166:1,2 166:11,14,17 167:17,20 168:3 168:22,25 185:13 186:3 188:2 whitelisted 155:22 159:23 160:2,22 160:24 165:2,3 169:24 172:9 173:1,4 174:25 199:6,7,8,13 200:17,22 201:19 whitelisting 158:8 158:14,17,20 159:11,15 161:2,5 161:10,18,24 162:3,11,13 163:25 164:1 165:6,8 200:16,20 whitelists 160:14 161:19 163:19 165:12 167:21 169:8 170:17 172:14,18 191:9 193:13,14 wide 41:15 48:14 69:4 160:14 widely 73:15,19 130:17 170:24 172:1 willing 10:19 window 190:2 196:13 199:12 witness 2:3 5:13 6:7 7:10 17:9 18:20 66:8 95:3 100:18 115:7,10 138:18 142:24 145:2,20 146:7 148:19 168:10 | 175:3 184:16 185:3 195:17 197:17 202:4 204:3,9 205:13,16 206:2,5 207:24 women 95:22,23 wondering 99:19 189:20 word 72:21,24 76:12 77:16 101:15,19 110:24 179:8 180:24 181:3 183:20 words 72:23 157:20 work 10:6,7,10 12:18,19 59:13 70:10 126:1 127:17 128:6 156:5 166:8 workable 42:20 worked 14:1,4 50:24 59:15 65:7 65:25 70:1 83:4 85:13,14 87:14 98:19 102:15 109:6,6,21 123:22 124:22 138:21 150:11 179:9 184:7,11 working 13:17 14:6 49:10 130:3 171:12,12 workplace 14:2,2 works 52:25 109:2 128:8 140:18 198:17 world 10:25 worth 28:6 33:16 wright 2:15 5:19 6:17 | write 117:9 118:2 174:14 writes 76:2 writing 174:10,11 written 36:18 59:18 wrong 16:6 39:25 158:2 wrote 119:24 x x 4:1 204:13 206:9 xu 15:7 y yeah 9:3 10:7 19:6 23:7 25:23 62:2,3 62:13 76:19 79:10 79:12,15 111:4 112:15 115:9 116:1 117:8 123:1 123:2 124:1 130:2 130:23 134:19 139:14 144:14 145:2,20 151:16 153:3 156:18 158:6 175:3 178:3 179:7 182:9 202:4 year 10:12 40:2 194:23 years 10:11 48:18 119:25 157:10,10 161:4 yep 9:19 76:1 z zarakhovsky 15:8 zero 40:14 zhen 4:16 174:5,15 zuckerberg 71:17 71:24 | à à 160:9,10 161:6 189:10 |
|--|--|---|---|

Federal Rules of Civil Procedure

Rule 30

(e) Review By the Witness; Changes.

(1) Review; Statement of Changes. On request by the deponent or a party before the deposition is completed, the deponent must be allowed 30 days after being notified by the officer that the transcript or recording is available in which:

(A) to review the transcript or recording; and

(B) if there are changes in form or substance, to sign a statement listing the changes and the reasons for making them.

(2) Changes Indicated in the Officer's Certificate. The officer must note in the certificate prescribed by Rule 30(f)(1) whether a review was requested and, if so, must attach any changes the deponent makes during the 30-day period.

DISCLAIMER: THE FOREGOING FEDERAL PROCEDURE RULES ARE PROVIDED FOR INFORMATIONAL PURPOSES ONLY.

THE ABOVE RULES ARE CURRENT AS OF APRIL 1, 2019. PLEASE REFER TO THE APPLICABLE FEDERAL RULES OF CIVIL PROCEDURE FOR UP-TO-DATE INFORMATION.

VERITEXT LEGAL SOLUTIONS
COMPANY CERTIFICATE AND DISCLOSURE STATEMENT

Veritext Legal Solutions represents that the foregoing transcript is a true, correct and complete transcript of the colloquies, questions and answers as submitted by the court reporter. Veritext Legal Solutions further represents that the attached exhibits, if any, are true, correct and complete documents as submitted by the court reporter and/or attorneys in relation to this deposition and that the documents were processed in accordance with our litigation support and production standards.

Veritext Legal Solutions is committed to maintaining the confidentiality of client and witness information, in accordance with the regulations promulgated under the Health Insurance Portability and Accountability Act (HIPAA), as amended with respect to protected health information and the Gramm-Leach-Bliley Act, as amended, with respect to Personally Identifiable Information (PII). Physical transcripts and exhibits are managed under strict facility and personnel access controls. Electronic files of documents are stored in encrypted form and are transmitted in an encrypted fashion to authenticated parties who are permitted to access the material. Our data is hosted in a Tier 4 SSAE 16 certified facility.

Veritext Legal Solutions complies with all federal and State regulations with respect to the provision of court reporting services, and maintains its neutrality and independence regardless of relationship or the financial outcome of any litigation. Veritext requires adherence to the foregoing professional and ethical standards from all of its subcontractors in their independent contractor agreements.

Inquiries about Veritext Legal Solutions' confidentiality and security policies and practices should be directed to Veritext's Client Services Associates indicated on the cover of this document or at www.veritext.com.

CONFIDENTIAL

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA

IN RE: FACEBOOK, INC., MDL No. 2843
CONSUMER USER PROFILE Case No.
LITIGATION 18-md-02843-VC-JSC

This document relates to:
ALL ACTIONS

CONFIDENTIAL

ZOOM DEPOSITION OF FACEBOOK's 30(b)(6)
CORPORATE REPRESENTATIVE - SIMON CROSS
(Reported Remotely via Video & Web Videoconference)
London, England (Deponent's location)
Thursday, May 12, 2022
Volume II

STENOGRAPHICALLY REPORTED BY:
REBECCA L. ROMANO, RPR, CSR, CCR
California CSR No. 12546
Nevada CCR No. 827
Oregon CSR No. 20-0466
Washington CCR No. 3491
JOB NO. 5219195
PAGES 208 - 495

Page 208

CONFIDENTIAL

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA

IN RE: FACEBOOK, INC., MDL No. 2843
CONSUMER USER PROFILE Case No.
LITIGATION 18-md-02843-VC-JSC

This document relates to:
ALL ACTIONS

DEPOSITION OF SIMON CROSS, taken on
behalf of the Plaintiffs, with the deponent located
in London, England, commencing at
2:36 p.m., Thursday, May 12, 2022, remotely
reported via Video & Web videoconference before
REBECCA L. ROMANO, a Certified Shorthand Reporter,
Certified Court Reporter, Registered Professional
Reporter.

CONFIDENTIAL

APPEARANCES OF COUNSEL

(All parties appearing via Web videoconference)

For the Plaintiffs:

KELLER ROHRBACK L.L.P.

BY: DEREK W. LOESER

BY: CARI CAMPEN LAUFENBERG

BY: ADELE A. DANIEL

BY: EMMA WRIGHT

Attorneys at Law

1201 Third Avenue

Suite 3200

Seattle, Washington 98101

(206) 623-1900

dloeser@kellerrohrback.com

claufenberg@kellerrohrback.com

adaniel@kellerrohrback.com

ewright@kellerrohrback.com

/////

CONFIDENTIAL

APPEARANCES OF COUNSEL

(All parties appearing via Web videoconference)

For the Plaintiffs:

BLEICHMAR FONTI & AULD LLP

BY: ANNE K. DAVIS

BY: LESLEY E. WEAVER

Attorneys at Law

555 12th Street

Suite 1600

Oakland, California 94607

(415) 445-4003

adavis@bfalaw.com

lweaver@bfalaw.com

/////

Page 211

CONFIDENTIAL

1 APPEARANCES OF COUNSEL(cont'd)
2 (All parties appearing via Web videoconference)

3

4 For Facebook, Inc.:

5 GIBSON, DUNN & CRUTCHER LLP

6 BY: ROBERT C. BLUME

7 BY: HANNAH REGAN-SMITH

8 Attorneys at Law

9 1801 California Street

10 Suite 4200

11 Denver, Colorado 80202-2642

12 (303) 298-5735

13 rblume@gibsondunn.com

14 hregan-smith@gibsondunn.com

15 and

16 COLIN B. DAVIS

17 Attorney at Law

18 3161 Michelson Drive

19 Irvine, California 92612-4412

20 (949) 451-3993

21 cdavis@gibsondunn.com

22

23

24

25 //

CONFIDENTIAL

1 APPEARANCES OF COUNSEL(cont'd)
2 (All parties appearing via Web videoconference)
3

4 For Facebook, Inc.:

5 GIBSON DUNN & CRUTCHER LLP

6 BY: MATT BUONGIORNO

7 Attorney at Law

8 2001 Ross Avenue

9 Suite 2100

10 Dallas, Texas 75201

11 (214) 698-3204

12 mbuongiorno@gibsondunn.com

13 and

14 BY: PHUNTSO WANGDRA

15 Attorney at Law

16 1881 Page Mill Road

17 Palo Alto, California 94304-1211

18 (650) 849-5206

19 pwangdra@gibsondunn.com

20

21

22

23

24

25 //

CONFIDENTIAL

1 APPEARANCES OF COUNSEL(cont'd)
2 (All parties appearing via Web videoconference)
3

4 JAMS
5 BY: DANIEL B. GARRIE
6 Special Master
7 555 W. 5th Street
8 32nd Floor
9 Los Angeles, California 90013
10 (213) 253-9706
11 dgarrie@jamsadr.com
12
13
14

15 ALSO PRESENT:
16 Ian Chen, Associate General Counsel, Facebook
17 Inc.
18 John Macdonell, Videographer
19
20
21
22
23
24

25 /////

Page 214

CONFIDENTIAL

I N D E X

| DEPONENT | EXAMINATION |
|-------------|-------------|
| SIMON CROSS | PAGE |
| VOLUME II | |

| | |
|---------------|-----|
| BY MR. LOESER | 221 |
|---------------|-----|

E X H I B I T S

| NUMBER | | PAGE |
|--------|--|------|
|--------|--|------|

DESCRIPTION

| | | |
|-------------|-----------------------------|-----|
| Exhibit 338 | Email String Subject: PS12n | 350 |
|-------------|-----------------------------|-----|

Criteria Review,

FB-CA-MDL-02951293 -

FB-CA-MDL-02951294;

| | | |
|-------------|---------------------------|-----|
| Exhibit 339 | PowerPoint Presentation - | 361 |
|-------------|---------------------------|-----|

facebook Criteria for

granting Exemptions and

Extensions Drat 12/5/13

Monica Mosseri,

FB-CA-MDL-02951295;

/////

Page 215

CONFIDENTIAL

| | | | |
|----|-------------------------|-------------------------------|------|
| 1 | E X H I B I T S(cont'd) | | |
| 2 | NUMBER | | PAGE |
| 3 | | DESCRIPTION | |
| 4 | Exhibit 340 | PowerPoint - facebook | 363 |
| 5 | | Criteria for granting | |
| 6 | | Exemptions and Extensions | |
| 7 | | Draft 12/5/13 Monica Mosseri, | |
| 8 | | META-CA-MDL-000041190 - | |
| 9 | | META-CA-MDL-0000412003; | |
| 10 | | | |
| 11 | Exhibit 341 | Deprecated f8 2014 | 393 |
| 12 | | Partnerships/Ops XFN, | |
| 13 | | FB-CA-MDL-02978561 - | |
| 14 | | FB-CA-MDL-02978571; | |
| 15 | | | |
| 16 | Exhibit 342 | Email dated January 27, 2014 | 433 |
| 17 | | Subject: platform model | |
| 18 | | changes, FB-CA-MDL-00202269; | |
| 19 | | | |
| 20 | Exhibit 343 | Email String Subject: | 472 |
| 21 | | Changing App Settings//Friend | |
| 22 | | Permissions, | |
| 23 | | FB-CA-MDL-01462921 - | |
| 24 | | FB-CA-MDL-01462921; | |
| 25 | ///// | | |

CONFIDENTIAL

| | | | |
|----|----------------------------|-------------------------------|------|
| 1 | E X H I B I T S(cont'd) | | |
| 2 | NUMBER | | PAGE |
| 3 | DESCRIPTION | | |
| 4 | Exhibit 344 | Email String Subject: [a/c | 483 |
| 5 | | priv Re: WSJ story on API | |
| 6 | | migration, FB-CA-MDL-01169155 | |
| 7 | | - FB-CA-MDL-01169173; | |
| 8 | | | |
| 9 | | | |
| 10 | PREVIOUSLY MARKED EXHIBITS | | |
| 11 | NUMBER | | PAGE |
| 12 | Exhibit 5 | | 243 |
| 13 | | | |
| 14 | Exhibit 6 | | 244 |
| 15 | | | |
| 16 | Exhibit 7 | | 256 |
| 17 | | | |
| 18 | Exhibit 11 | | 293 |
| 19 | | | |
| 20 | Exhibit 12 | | 294 |
| 21 | | | |
| 22 | Exhibit 13 | | 331 |
| 23 | | | |
| 24 | Exhibit 14 | | 410 |
| 25 | ///// | | |

Page 217

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

PREVIOUSLY MARKED EXHIBITS(cont'd)

| NUMBER | PAGE |
|------------|------|
| Exhibit 15 | 413 |
| Exhibit 16 | 440 |
| Exhibit 17 | 441 |
| Exhibit 20 | 327 |

/////

CONFIDENTIAL

1 London, England; May 12, 2022

2 2:36 p.m.

3 ---o0o---

4 THE VIDEOGRAPHER: Okay. We're on the

5 record. It's 2:36 p.m., the time in London, on 02:36:47

6 May 12th, 2022. This is the deposition of

7 Simon Cross, Volume II.

8 We're here in the matter of In Re:

9 Facebook, Inc. Consumer Privacy User Profile

10 Litigation. 02:37:00

11 I'm John Macdonell, the videographer with

12 Veritext. Before the reporter swears the witness,

13 would counsel please identify themselves, beginning

14 with the noticing attorney, please.

15 MR. LOESER: Good morning. This is 02:37:16

16 Derek Loeser from Keller Rohrback, and with me is

17 Adele Daniel and Cari Laufenberg, also from

18 Keller Rohrback.

19 MR. BLUME: Rob Blume with Gibson Dunn on

20 behalf of Facebook. And with me is Ian Chen, 02:37:28

21 client representative, as well, as Phuntso Wangdra,

22 Hannah Regan-Smith, Colin Davis. And I believe

23 that's all at the moment.

24 SPECIAL MASTER GARRIE: And you have

25 Special Master Garrie as a representative of the 02:37:45

Page 219

CONFIDENTIAL

1 court. 02:37:47

2 Good morning, Counsel Chen. Good

3 morning, Counsel Davis.

4 It's been a while since I've seen you,

5 Counsel Davis. 02:37:53

6 I will turn it over to the parties

7 without further adieu.

8 THE COURT REPORTER: At this time, I will

9 ask counsel to agree on the record that there is no

10 objection to this deposition officer administering 02:38:01

11 a binding oath to the deponent via remote

12 videoconference, starting with the noticing

13 attorney, please.

14 MR. LOESER: No objection. Thank you.

15 MR. BLUME: No objection from Facebook. 02:38:18

16 THE COURT REPORTER: Mr. Cross, if you

17 could raise your right hand for me, please.

18 THE DEPONENT: (Complies.)

19 THE COURT REPORTER: You do solemnly

20 state, under penalty of perjury, that the testimony 02:38:19

21 you are about to give in this deposition shall be

22 the truth, the whole truth and nothing but the

23 truth?

24 THE DEPONENT: I do.

25 ///// 02:38:35

CONFIDENTIAL

1 SIMON CROSS,, 02:38:35

2 having been re-administered an oath, was examined

3 and testified as follows:

4

5 EXAMINATION(resumed) 02:38:36

6 BY MR. LOESER:

7 Q. Good afternoon, Mr. Cross.

8 Derek Loeser, as you know, from

9 Keller Rohrback and -- and good morning to me.

10 I -- just a couple of questions before we 02:38:48

11 dive back into where we were. Your counsel has

12 provided us with the notes that -- that you

13 identified on Monday.

14 Do you have any additional notes that

15 you'll be using for your testimony today? 02:38:59

16 A. No.

17 Q. And did you bring any materials with you,

18 other than notes, for the purpose of this

19 deposition today?

20 A. Nope. 02:39:10

21 Q. And did you review any other documents,

22 other than those that you identified or indicated

23 you reviewed on Monday?

24 A. Yes. There were a number of documents

25 that I understand you sent over to us and I -- I 02:39:22

Page 221

CONFIDENTIAL

1 reviewed as many of them as I could. 02:39:26

2 Q. Okay. And that's the same set that -- I
3 didn't send any new ones so those are the same
4 documents that -- that were provided in advance of
5 your testimony on Monday. 02:39:36

6 So had you seen -- your review this time,
7 was that the first time you had seen some of those
8 documents?

9 A. I think so, yeah. Maybe I'll ask my --
10 my counsel to -- to confirm. 02:39:48

11 MR. BLUME: Yeah. And -- and this is --
12 this is Mr. Blume.

13 I actually think you did send an
14 additional set over, but we can check that.

15 MR. LOESER: Okay. Well, we can talk 02:40:00
16 about that later because if we did; it's news to
17 us. But that's okay, we'll figure that out.

18 Q. (By Mr. Loeser) All right. Mr. Cross,
19 you'll recall on Monday we spent a good deal of
20 time with my questions about the reason Facebook 02:40:17
21 decided to whitelist certain apps from partners so
22 that those partners would be able to access
23 publicly deprecated permissions after Graph API
24 version 2 became operative.

25 Do you -- do you recall those questions 02:40:30

CONFIDENTIAL

1 and -- and your testimony? 02:40:31

2 A. I recall the discussion, generally.

3 Q. And you recall that -- that I
4 specifically asked about friend permissions, right?

5 A. We had a number of discussions about 02:40:42
6 friend permissions, yes.

7 Q. And I asked you to tell me all the
8 reasons that Facebook decided to allow certain apps
9 and partners to have access to friend permissions
10 after the transition to Graph API version 2, right? 02:40:51

11 Do you recall that?

12 A. I recall a question of that nature.

13 Q. Okay. And you recall that you answered
14 that question?

15 A. I recall answering a question of that 02:41:02
16 nature.

17 Q. And at the end of the day -- and this --
18 and this is why I'm bringing this up -- you said
19 something -- and I just wanted to read to you what
20 you said and make sure I understand your testimony. 02:41:11

21 You explained that -- and I'm going to
22 quote here for -- for a minute.

23 "As I say, there are a number of
24 developers also whitelisted for continued access to
25 version 1 because of their use of other -- because 02:41:24

Page 223

CONFIDENTIAL

1 of their -- because of them being affected by other 02:41:27
2 changes in the API between version 1 and
3 version 2."

4 Do you recall that testimony?

5 A. That sounds reasonable, yes. 02:41:36

6 Q. And -- and before moving on, I just want
7 to make sure I -- I understand what you meant by
8 that. So I'll give it a try and you can tell me if
9 I've got it right.

10 Some apps and partners were given 02:41:48
11 whitelist access to friend permissions. And we
12 talked about the reasons for that. And others were
13 given whitelist access to other permissions that
14 were being deprecated, right?

15 A. Not necessarily other permissions that 02:42:02
16 were being deprecated.

17 Q. Okay. Explain -- explain what -- what
18 you mean there.

19 A. There were some other features of
20 Graph API version 2, where API version 2 differed 02:42:17
21 from version 1.

22 One of those changes, for example, was
23 the transition from canonical Facebook user IDs to
24 app-scoped user IDs. A number of developers
25 had a -- had a challenge with that migration and 02:42:34

Page 224

CONFIDENTIAL

1 needed extra time. 02:42:37

2 Q. Okay. And can you explain what -- what
3 canonical IDs are and -- and hashed?

4 A. So when I say "canonical" Facebook user
5 ID, that's the -- the Facebook user ID that 02:42:50

6 uniquely represents a user in the Facebook
7 database. And it's the -- the same user ID that's
8 used inside Facebook's internal systems and was the
9 API -- the user ID that would have been admitted in
10 the original version of the Facebook developer 02:43:11

11 platform.

12 In version 2, there was a transition from
13 admitting canonical user IDs to committing -- to
14 admitting app-scoped user IDs. The precise nature
15 in which that transition occurred is -- is -- is 02:43:28

16 relatively complicated. I can go into in -- if you
17 need to.

18 But in simple terms, where in version 2
19 we might admit a user ID which was unique between
20 the specific user and the specific application, 02:43:47
21 that was making the API call.

22 Q. Okay. And what was the purpose of that
23 change?

24 A. The purpose of that change was to make it
25 harder for developers to aggregate information 02:44:00

Page 225

CONFIDENTIAL

1 across multiple Facebook application IDs and make 02:44:08
2 it easier where user IDs had been admitted to
3 identify which application they had been admitted
4 by.

5 Q. Okay. And why did Facebook want to make 02:44:21
6 that harder?

7 Why did Facebook want to make it harder
8 to aggregate ID information?

9 A. My understanding is that there were a
10 number of concerns about applications being able 02:44:36
11 to, for example, use multiple app IDs to bypass API
12 rate limits, for example, and the migration to
13 app-scoped user IDs made that harder. So that's
14 one example.

15 Q. And were privacy concerns -- Facebook 02:45:05
16 user privacy concerns another reason for that
17 change?

18 A. One of the advantages of app-scoped user
19 IDs were admitted is that you could understand
20 which application had admitted them, and that might 02:45:21
21 make it easier to track if information was being
22 misused.

23 Q. And was misuse of information, based upon
24 the aggregation of user IDs, a problem that
25 Facebook had identified with Graph API version 1? 02:45:38

Page 226

CONFIDENTIAL

1 A. One of the -- 02:45:45

2 MR. BLUME: Sorry. I missed my mute
3 button.

4 I just object to scope.

5 THE DEPONENT: Yeah, I'm not aware of 02:45:56
6 exactly what the -- the company's position on that
7 is.

8 From a personal capacity, I recall that
9 the aggregation of user data or cross-applications
10 being a concern that was raised at the time. 02:46:12

11 Q. (By Mr. Loeser) One last thing to make
12 clear from your testimony on Monday.

13 I asked you -- and we had a obviously
14 lengthy discussion about whitelisting as a means of
15 providing access to publicly deprecated 02:46:26
16 permissions, right?

17 A. We had a conversation about permissions
18 for sure.

19 Q. And you'll also recall that I asked you
20 about private APIs with partners. 02:46:35

21 Do you recall that?

22 A. We had a number of discussions about
23 private APIs.

24 Q. Okay. And private APIs are APIs that are
25 made available to certain partners, but are not 02:46:46

Page 227

CONFIDENTIAL

1 publicly available; is that right? 02:46:49

2 A. I think a reasonable description of a
3 private API is an API that's not available to -- to
4 all developers and only available to some.

5 Q. And -- and some of the partners -- some 02:47:01
6 of Facebook's partners, prior to the transition to
7 Graph API version 2, already had private APIs with
8 Facebook; is that right?

9 A. There are a number of partners that had
10 built experiences that would only be possible if 02:47:18
11 they had been granted access to -- to private APIs.

12 Q. So your answer is "yes"?

13 A. I -- I think it's -- there -- there were
14 entities -- third parties that had built
15 applications that re- -- would -- would have 02:47:39
16 required access to private APIs.

17 Q. And -- and I don't mean to belabor the
18 point, but I'm trying to get to a "yes."

19 So I think you just answered
20 affirmatively. Am I interpreting your question -- 02:47:48
21 your answer correctly?

22 A. Ask your question again so I can make
23 sure I am like -- I want to make sure I -- I --
24 I -- when I give a yes, I want to make sure I fully
25 agree with what you're -- you're asking me about. 02:48:00

Page 228

CONFIDENTIAL

1 Q. Sure. 02:48:02

2 I asked you, some of Facebook's partners,
3 prior to the transition to Graph API version 2,
4 already had private APIs with Facebook; is that
5 right? 02:48:12

6 A. That's right.

7 Q. However, some partners that entered into
8 or were provided access to private APIs, after the
9 transition to Graph API version 2, did not
10 previously have access to private APIs, right? 02:48:24

11 MR. BLUME: Objection. Scope.

12 THE DEPONENT: Yeah. I -- I'm not sure
13 I -- how -- how to answer that -- how to answer
14 that question.

15 It's unclear as to the exact form of 02:48:39
16 scope you mean.

17 Can you -- can you ask it again so I can
18 try and understand.

19 Q. (By Mr. Loeser) Sure. Sure.

20 I'm just trying to understand how private 02:48:51
21 APIs were used.

22 So you had some partners that already had
23 them before the transition. And you had some
24 partners that, for the first time with the
25 transition, were provided access to private APIs, 02:48:59

Page 229

CONFIDENTIAL

1 right? 02:49:03

2 A. One of the challenges in answering the --
3 the question is that part of the transition from
4 version 1 to version 2 is when something is
5 publicly deprecated it becomes -- you might 02:49:16
6 consider that to be a private API.

7 And in order to continue accessing --
8 accessing that feature for some time, they would be
9 added to a whitelist that would give them access to
10 what would then be considered a private API. 02:49:36

11 Q. Okay. And that's exactly what I'm trying
12 to make sure the record is clear on.

13 So there were some partners that had
14 access to friend permissions, for example, under a
15 Graph API version 1 through the -- the permissions 02:49:51
16 that were publicly available, right?

17 A. That's correct.

18 Q. And then in the transition, those
19 publicly available -- publicly available
20 permissions were deprecated. And in order for them 02:50:02
21 to continue having access to friend permissions,
22 they were able to obtain that access through --
23 through private APIs after the transition; is that
24 right?

25 A. To be -- to be clear, there's a 02:50:19

Page 230

CONFIDENTIAL

1 difference between private API and permissions 02:50:21

2 different -- slightly different concepts.

3 So in -- in the case that if an app

4 wanted to continue to have access to a permission

5 that had been publicly deprecated from -- or 02:50:39

6 publicly removed from most other applications in

7 order to continue accessing data under that

8 permission or requesting that permission from

9 users, after some time it would have had to be on

10 the whitelist. 02:50:58

11 Q. Okay. And so when you use the phrase

12 "whitelist," now, you're -- you're -- you're

13 referring to whitelist via a private API as well,

14 right?

15 A. No. I'm referring in this case in -- in 02:51:10

16 my definition of whitelisting -- my use of

17 whitelisting in this case refers to an application

18 being added to a whitelist in the form of a

19 capability or some other internal gating system.

20 Q. Okay. So if you were going to create a 02:51:28

21 list of all of the partners -- Facebook partners

22 that had private APIs, would you consider all of

23 the partners who obtained access to publicly

24 deprecated permissions as having been whitelisted?

25 A. In order to access publicly deprecated 02:51:52

Page 231

CONFIDENTIAL

1 APIs or permissions, once they had been publicly 02:51:55
2 deprecated, a developer would need to be on a
3 whitelist.

4 Q. And -- and I don't want you to repeat
5 your earlier testimony. I just want you to confirm 02:52:10
6 that you have told me all the reasons that Facebook
7 decided to allow certain partners to obtain friend
8 data after the transition to Graph API version 2,
9 via private APIs.

10 A. Sorry. Can you just repeat the question 02:52:24
11 again.

12 Q. Sure.

13 I just want to make sure the record's
14 clear. I asked you a lot of questions about the
15 reasons why Facebook decided to continue allowing 02:52:30
16 access to deprecated permissions, including friend
17 sharing.

18 And -- and now we've established that one
19 of the ways that partners obtained access to
20 previously publicly available permissions was 02:52:45
21 through private APIs, right?

22 A. No. The way that the developers'
23 applications would have retained access to
24 previously publicly available permissions would
25 have been to be on a whitelist. 02:53:03

CONFIDENTIAL

1 Q. Okay. And those -- and some of those 02:53:05
2 partners obtained those permissions via private
3 APIs, right?

4 A. Developers obtained permissions from
5 users. Users get the ability to grant permissions 02:53:16
6 to an app.

7 Q. Right.
8 Well, frequently Facebook refers to
9 permissions as the -- the access to certain types
10 of information made available by Facebook to third 02:53:28
11 parties, right?

12 A. The way permissions were --
13 (Simultaneously speaking.)

14 Q. (By Mr. Loeser) The friend permissions.
15 Yeah, I understand, but... 02:53:37

16 A. So friend permi- -- permissions are a
17 concept in the Facebook developer platform. And
18 the way that permissions work is that users grant
19 those permissions to applications. Face- --
20 Facebook does not grant those permissions to 02:53:48
21 applications on a user basis. Users grant those
22 permissions.

23 Q. Facebook makes available -- it's up to
24 Facebook what APIs are available to third parties,
25 right? 02:54:00

CONFIDENTIAL

1 Before the third party can ask for the 02:54:00
2 permission from the user, Facebook decides what
3 APIs are potentially available to the developer,
4 right?

5 A. Facebook builds the -- the discussion in 02:54:11
6 this matter is that Facebook developer platform is
7 built by Facebook and, therefore, Facebook would
8 decide how that platform functioned.

9 Q. Okay. And, again, I'm just trying to
10 make sure the record is complete on the reasons why 02:54:23
11 Facebook provided access to publicly deprecated
12 permissions to partners.

13 You understand that, right?

14 A. I understand.

15 Q. And we're having a struggle -- sorry. 02:54:34
16 Go ahead.

17 A. No, go.

18 Q. We're having a bit of a struggle over how
19 to properly use the phrase "private APIs" in a
20 sentence. And -- and I just want to make sure that 02:54:44
21 with respect to private APIs, you have told me all
22 the reasons why a private API would be made
23 available to any Facebook partner in the
24 transition.

25 A. I'm not -- the -- the question -- the -- 02:55:05

Page 234

CONFIDENTIAL

1 my recollection of the question you asked me 02:55:08
2 previously was around the reasons for apps to
3 access the friend permissions after the friend
4 permissions had been deprecated publicly.

5 And my understanding, having read many 02:55:23
6 documents on this topic and spoken to the people
7 involved at the time, and my own recollection, is
8 that nobody has been able to explain to me any
9 other reason why an app would have been given an
10 extension to request a friend permissions. 02:55:46

11 Q. Just for a minute I'm -- I'm going to
12 look at your notes. And, again, your -- your
13 counsel provided us with the notes that you
14 prepared and they've been marked as an exhibit.

15 Did you personally draft these notes? 02:56:08

16 A. Which exhibit are we referring to
17 specifically?

18 Q. Exhibit 335.

19 A. Yeah, I personally drafted these notes.

20 Q. And one of the topics in your notes, on 02:56:30
21 the first page you have "Evolution of platform
22 timeline."

23 Do you see that?

24 A. I see that.

25 Q. And you refer to -- you have a bullet for 02:56:53

Page 235

CONFIDENTIAL

1 "Granular permissions." 02:56:54

2 Do you see that?

3 A. I do see that.

4 Q. And so according to your notes, these

5 granular permissions started in 2010, correct? 02:57:01

6 A. That's my understanding of when the

7 granular permissions were launched.

8 Q. And so before granular permissions, did

9 app users -- or did apps get access to friend data

10 without needing to obtain authorization from the 02:57:17

11 user via the granular permissions?

12 A. The way the original authentication model

13 worked was that a user still had to make a decision

14 to grant an app access to their information. But

15 after doing so, the app had access to many of the 02:57:43

16 things that the Facebook user could have seen on

17 Facebook which may have included friends

18 information.

19 Q. Okay. And so what granular permissions

20 introduced was the requirement that the -- that the 02:57:58

21 app request express permission for the different

22 types of data that the app could access from the

23 user, including friend data, right?

24 A. Granular permissions was -- was seen as a

25 significant step forward in privacy by requiring 02:58:15

Page 236

CONFIDENTIAL

1 developers to specify which subset of a user's 02:58:20
2 Facebook information the user would grant to the
3 application.

4 Q. Okay. And, again, so the record is
5 clear, prior to the introduction of granular 02:58:33
6 permissions, apps did not have to ask users for
7 express permission to access friend data, correct?

8 A. Apps had to access -- ask users for
9 express permission to access any of the user or
10 their friends' information. 02:58:51

11 So I want to be super clear. That is
12 always and always was a user opt-in step.

13 Q. However, prior to granular permissions,
14 there was not a requirement for the app to ask
15 expressly for permissions to access friend data, in 02:59:05
16 particular, right?

17 A. There was not a permission model in place
18 at that time that required an app developer to
19 explicitly request access to friend data.

20 Q. If you look at the next bullet in your 02:59:24
21 notes you state, "Facebook's internal testing
22 revealed that each additional permission requested
23 in a GDP permissions dialog box resulted in a
24 roughly 3% decrease in user conversion rate."

25 Can you -- did I read that correctly? 02:59:40

Page 237

CONFIDENTIAL

1 A. I think you read that correctly, yeah. 02:59:42

2 Q. Okay. Can you explain what that means?

3 A. So in the transition to granular
4 permissions, developers were required to request
5 specific permissions from users when authorizing 03:00:00
6 their application. And developers had a number of
7 permissions to choose from or to select from.

8 And this quote is taken from a
9 document -- an internal document that -- I think --
10 potentially an external document. I don't recall 03:00:19
11 the source of this quote -- that directionally
12 means that the more permissions that an app
13 requested, the fewer people, on average, would
14 authorize the application in the granular data
15 permissions dialogue. 03:00:37

16 Q. And so -- so when users are asked
17 specifically by an app for permission to obtain
18 particular information, 3 percent of the time,
19 according to this source, the user said no?

20 A. No, that's not what it -- it means. 03:00:59
21 Best illustrated with an example for
22 clarity, I think.

23 Let's imagine an application called
24 Simon's Food app. And Simon's Food app would like
25 to access -- would like a user to use it. And as 03:01:19

Page 238

CONFIDENTIAL

1 part of that, it would like access to some of that 03:01:25
2 user's information.

3 In -- in this hypothetical example, if
4 the app requested, let's say, two permissions from
5 the user, then the conversion rate, i.e., the 03:01:42
6 percentage of people who were asked for permission
7 and granted it, might be 70 percent.

8 On average, if the app asked for three
9 permissions instead of two, the conversion rate,
10 again, on average, might be 67 percent. 03:01:59

11 Q. Okay. Understood.

12 And so are there -- is there variation,
13 depending upon what specific permission is being
14 requested?

15 A. I haven't prepared a company response to 03:02:18
16 that.

17 From a personal recollection level, I can
18 recall seeing analysis that analyzed conversion
19 rate by permission, based on different types of
20 permission. 03:02:37

21 Q. And have you seen an analysis of the
22 conversion rate when the permission being requested
23 is friend permission?

24 A. Again, on -- on a personal capacity, I --
25 I don't recall the details of -- of what that 03:02:50

Page 239

CONFIDENTIAL

1 analysis was. I wouldn't want to speculate what it 03:02:56
2 is from my memory. Like that -- that would have
3 been a document that I haven't seen for many years.

4 Q. And -- and does Facebook believe that,
5 depending upon on how the permission is phrased, 03:03:07
6 meaning what words are used, the conversion rate
7 would be affected?

8 MR. BLUME: Objection. Scope.

9 THE DEPONENT: I haven't prepared a -- a
10 company answer on that. And I -- I haven't 03:03:23
11 reviewed documents that -- in preparation for this
12 that would allow me -- allow me to answer that
13 question on behalf of the company.

14 Again, on a -- on a personal level, I
15 can't -- I can't recall analysis about the -- 03:03:39
16 the -- the wording or the framing of the -- the
17 permissions in the dialogue.

18 So I -- I don't -- I don't recall seeing
19 analysis like that. It's possible it was done, but
20 I -- I wouldn't want to confirm something I don't 03:03:58
21 recall specifically.

22 Q. (By Mr. Loeser) Now, just the last
23 question on your notes here.

24 If you turn to the next page, there's a
25 heading "Wind-down timeline." 03:04:13

CONFIDENTIAL

1 And can you read the second bullet that 03:04:17
2 you have under that heading?

3 A. "There was an effort from Oct 2019 to
4 Jan 2020 to ensure all access was removed for
5 integrated partners and other 03:04:31
6 previously-whitelisted apps."

7 Q. And -- and what was the -- what prompted
8 this effort?

9 A. I actually think I might be -- I may have
10 been confused when I -- when I wrote this. 03:04:48

11 I -- I don't -- I -- I don't think there
12 was an effort from October 29 [sic] to January 2020
13 to ensure all access was removed for integration
14 partners and other previously whitelisted apps.

15 So I think I -- I was mistaken with this 03:05:03
16 bullet.

17 Q. And are you mistaken -- mistaken about
18 the time frame or you believe there never was an
19 effort to remove -- to remove access for
20 integration partners and previously whitelisted 03:05:18
21 apps?

22 A. There was an effort to ensure all access
23 was removed for integration partners and other
24 previously whitelisted apps. My understanding is
25 that process happened in 2018. 03:05:31

Page 241

CONFIDENTIAL

1 Q. And when did that process complete? 03:05:35

2 A. The -- the -- I think -- my understanding

3 is that the -- the majority of that process --

4 the -- the bulk of that process completed in

5 June 2018. 03:05:51

6 Q. And was there some part of that process

7 that continued after that?

8 A. There's a developer blog post on July --

9 in July 2019, which refers to another few

10 applications that were later discovered and then 03:06:15

11 removed.

12 Q. So you educated yourself on this topic

13 through a publicly available developer's post; is

14 that what you're saying?

15 A. That's one of the ways I educated 03:06:30

16 yourself.

17 Q. Okay. And there were other ways as well,

18 right?

19 A. As we discussed, I have spoken to many of

20 the people involved at the time and -- and read 03:06:38

21 many internal documents on the matter.

22 MR. LOESER: Okay. And -- all right.

23 Well, we can move on. Thank you for that. And --

24 and start going through some more exhibits.

25 /////

Page 242

CONFIDENTIAL

1 MR. LOESER: We're going to put up what 03:06:55
2 has been previously marked as Exhibit 5. It's tab
3 11 in our binder, Mr. Cross.

4 Q. (By Mr. Loeser) Let me know when you see
5 the document. 03:07:42

6 A. Would you mind -- I can see the document,
7 but it's -- it's very small.

8 Would you -- would you -- would you mind
9 blowing it up.

10 (Discussion off the stenographic record.) 03:08:01

11 MR. LOESER: Okay.

12 THE DEPONENT: Thank you, Adele.

13 Q. (By Mr. Loeser) You should be looking at
14 what's previously been marked as Exhibit 5, which
15 is an email -- I'm not going to try and say this 03:08:14
16 name -- let's just -- can you say that name of the
17 author?

18 A. Constantin Koukouzelis.

19 Q. Okay. We'll call him CK. Not to be
20 confused with -- with KP, if that's okay with you. 03:08:26

21 A. That's fine with me.

22 Q. Is that okay?

23 Okay. And this is an email from CK to
24 Vishu Gupta and Doug Purdy, George Lee,
25 Vladimir Fedorov, and the subject is "Re: platform 03:08:41

Page 243

CONFIDENTIAL

1 3.0 2nd rev." 03:08:47

2 Do you see that?

3 A. I see that.

4 Q. And this is dated August 16th, 2013.

5 Do you see that? 03:08:59

6 A. I see that.

7 Q. And the attachment to this doc indicates

8 "Platform 3.0.docx."

9 Do you see that?

10 A. I see that. 03:09:11

11 Q. So CK is circulating a document that is a

12 platform 3.0 -- it looks like Word file, right?

13 A. Docx typically refers to a Word file,

14 yes.

15 MR. LOESER: Okay. We can put that 03:09:46

16 aside, and we're going to look at the attachment to

17 that document which has previously been marked

18 Exhibit 6.

19 MR. BLUME: Derek, are these marked as

20 exhibits to Mr. Cross's deposition numbers? 03:10:12

21 I'm -- I'm just not seeing them in the

22 Veritext Exhibit Share.

23 MR. LOESER: These are -- we're just

24 numbering in sequence through the case. And so

25 this was the -- just Exhibit 6. It was in the 03:10:26

Page 244

CONFIDENTIAL

1 Chang deposition, but I don't think that has 03:10:32

2 anything to do with how they're being marked.

3 MR. BLUME: Okay. And so it will go in

4 as the same exhibit number here.

5 MR. LOESER: Right. 03:10:42

6 Q. (By Mr. Loeser) So Mr. Cross, can you

7 see Exhibit 6 yet?

8 A. Not yet.

9 Q. And while we're waiting for that to load,

10 you're not communicating with anyone via text or 03:11:04

11 email, or anything, during the course of this

12 deposition, are you?

13 A. I am not.

14 Q. Okay. Thank you.

15 All right. So now do you see Exhibit 6? 03:11:17

16 A. I do.

17 Q. And this -- does this appear to be a Word

18 document with the heading "Platform 3.0"?

19 A. It does.

20 Q. Okay. And I'll just state for the 03:11:26

21 record, this is the document that was attached to

22 the prior exhibit email that we identified.

23 And what is platform 3.0?

24 A. Platform 3.0 refers -- is one of the

25 internal working titles for the set of changes that 03:11:47

Page 245

CONFIDENTIAL

1 were ultimately announced on April the 30th, 2014. 03:11:50

2 Q. And can you read the third paragraph
3 of -- of this -- this document for the record?

4 A. I can.

5 "After a lot of consideration we've" -- 03:12:07
6 and before I do, I assume it will be marked in the
7 record that I'm reading something rather than
8 saying something.

9 Can I just get a nod from the court
10 reporter? 03:12:21

11 THE COURT REPORTER: (Nod.)

12 Q. (By Mr. Loeser) Yes. It'll say "witness
13 reading."

14 A. Thank you. Okay. Good. Thank you.

15 "After a lot of consideration we've 03:12:28
16 decided to make some changes to the Facebook
17 platform to act on this feedback. This is not a
18 decision we've taken lightly and some of these
19 changes will be painful for our developers in the
20 short term. However, in the process of providing 03:12:40
21 users with the control they want" or need --

22 "/ need we are working towards a shared goal of
23 greater engagement and long term health of the
24 ecosystem that will mutually benefit both users and
25 our developers." 03:12:53

Page 246

CONFIDENTIAL

1 Q. And -- and Mr. Cross, is that an accurate 03:12:56
2 statement of the reasons for the introduction of
3 platform 3.0?

4 A. This is a document, as I understand it,
5 prepared nearly -- nearly nine months before the 03:13:09
6 changes were ultimately announced. I don't think
7 I -- it's appropriate to confirm that this is an
8 accurate representation of the reasons.

9 Q. Okay. And was it Facebook's position
10 and -- well, let me read one part of this and you 03:13:36
11 tell me if this is, in fact, what Facebook's
12 motivation was.

13 It says "However, in the process of
14 providing users with the control they want / need
15 we are working towards a shared goal of greater 03:13:52
16 engagement and long term health of the ecosystem
17 that will mutually benefit both users and our
18 developers."

19 What is the reference to "providing users
20 with the control they want"? 03:14:03

21 Do you know what that refers to and how
22 the changes provided that control?

23 A. My understanding --

24 MR. BLUME: Where -- I'm sorry. Is
25 that -- I'm not seeing that on my screen, what 03:14:14

Page 247

CONFIDENTIAL

1 you're reading, Derek. 03:14:17

2 MR. LOESER: It was in the paragraph that
3 Mr. Cross read. Third paragraph.

4 MR. BLUME: Okay. Thank you.

5 THE DEPONENT: My understanding is that 03:14:28

6 that refers to the changes that were made to the
7 Facebook platform login dialogue as -- as of
8 April 30th, 2015, for new apps that allowed users
9 to decline to grant certain permissions that the
10 app had requested from them. 03:14:51

11 Q. (By Mr. Loeser) Okay. Let's go to the
12 next page of this memo. There's a heading
13 "Breaking Changes."

14 And before getting into the substance of
15 this, can you explain what breaking changes are? 03:15:11

16 A. Typically, breaking changes means when
17 some behavior of the platform is changed that would
18 require developers to write code to prevent broken
19 experiences or integrations.

20 Q. And then underneath the "Breaking
21 Changes" heading, you see a subheading, "Deprecate
22 friend permissions."

23 Do you see that?

24 A. I do see that.

25 Q. And could you read the paragraph under 03:15:45

Page 248

CONFIDENTIAL

1 that heading, for the record. 03:15:46

2 And I'll note so -- so the court reporter
3 doesn't even have to, that you are going to now be
4 reading a paragraph that is in this presentation
5 prepared by Facebook. 03:15:55

6 A. Thank you.

7 "We are removing the ability for users to
8 share data that belongs to their friends, who have
9 not installed the app. Our philosophy is that
10 users should be empowered to share their data with 03:16:04
11 an app when they have expressed intent. Users
12 should not be able to act as a proxy to access
13 personal information about friends that have not
14 expressed any intent in using the app. Apps can
15 still power great, meaningful social experiences 03:16:19
16 for their users and prompt a user to invite their
17 friends to participate in the experience. Once a
18 friend has installed the app, they can determine
19 how much information they are willing to share at
20 their discretion." 03:16:33

21 Q. Thank you.

22 So based upon this explanation, fair to
23 say that the idea behind removing friend
24 permissions was to make sure that users are
25 "empowered to share their data with an app when 03:16:44

Page 249

CONFIDENTIAL

1 they have expressed intent," right? 03:16:47

2 A. That was one of the -- that was seen at
3 the time to be one of the -- the reasons for
4 deprecating the friend permissions, yes.

5 Q. And Facebook decided that "users should 03:17:06
6 not be able to act as a proxy to access personal
7 information about friends that have not expressed
8 any intent in using the app," right?

9 A. I think it's important to remind
10 ourselves of the context of this document. 03:17:22

11 This document is being written by a
12 product manager as a -- in my understanding, a
13 potential narrative to explain some of the changes,
14 which at that time were being proposed.

15 Q. And, sir, as we saw in this document, was 03:17:50
16 it not the case that Facebook decided that users
17 should not be able to act as a proxy to access
18 personal information about friends that have not
19 expressed an intent in using the app?

20 A. This is not Facebook's language. This is 03:18:05
21 language written by a product manager on the team,
22 who was involved in preparing and planning these
23 changes.

24 Q. So are you saying that this product
25 manager was intending to misrepresent the reason 03:18:21

Page 250

CONFIDENTIAL

1 for the changes? 03:18:23

2 THE COURT REPORTER: Wait, Mr. Blume. I
3 didn't hear you.

4 MR. BLUME: Sorry. Objection to form.

5 THE DEPONENT: I'm not suggesting that 03:18:33

6 this product manager was -- was misrepresenting
7 Facebook's opinion, just that this represents a --
8 the view, as held by that product's manager at the
9 time, as they wrote this document.

10 Q. (By Mr. Loeser) And did Facebook have a 03:18:50
11 different view?

12 MR. BLUME: Objection. Scope.

13 THE DEPONENT: It's hard for me to --
14 yeah -- answer that, like does Facebook -- yeah, at
15 the Facebook level. 03:19:05

16 My personal understanding is that this is
17 broadly aligned with the direction as evidenced by
18 the friend permissions being deprecated some nine
19 months later.

20 Q. (By Mr. Loeser) Okay. And so the way to 03:19:20
21 stop users from -- from providing access to their
22 friend's personal information to apps the friends
23 did not want to share was to deprecate friend
24 permissions, right?

25 A. It was seen that deprecating the friend 03:19:34

Page 251

CONFIDENTIAL

1 permissions would give users -- would -- would give 03:19:36
2 people -- would make it less likely that users
3 would share friends information -- friends content
4 with a third-party application.

5 Q. Okay. If we can move down to the heading 03:20:00
6 on the next page that says "Deprecate read_stream
7 permissions."

8 And to give you a break on your reading,
9 I'll read this one myself and -- and note that I'm
10 reading from this document. 03:20:21

11 Under the heading "Deprecate read_stream
12 permission," this document states "We will be
13 deprecating the ability for developers to request
14 access to a users news feed. This is an extremely
15 powerful API that exposes a large amount of 03:20:34
16 personal data. User's are often unclear how this
17 information is used and unaware of exactly how much
18 information they are releasing to apps. There is
19 no good way to make this functionality work with
20 our enhanced focus on user trust and we will be 03:20:48
21 removing it in the upcoming months."

22 Did I read that correctly?

23 A. Yeah, I think you read that correctly.

24 Q. And we talked a bit about read stream
25 permission, but -- but -- so the record is clear, 03:20:59

Page 252

CONFIDENTIAL

1 what -- what is read stream permission? 03:21:02

2 A. The read stream permission allowed --
3 when a user granted it to an application, allowed
4 an app to read that user's newsfeed.

5 Q. And this states that this is an 03:21:24
6 "extremely powerful API that exposes a large amount
7 of personal information."

8 Does Facebook agree with that statement?

9 MR. BLUME: Objection. Scope.

10 THE DEPONENT: I don't -- I don't feel 03:21:38
11 qualified to -- to give Facebook's position on it.

12 My personal view is that it was an API
13 that allowed apps -- apps to access a user's
14 friends information, the posts and comments -- the
15 posts on their newsfeed and -- and that was 03:21:59
16 considered similarly to the friend permissions we
17 discussed above.

18 Q. (By Mr. Loeser) And so in the transition
19 to platform 3.0, the decision was made by Facebook
20 to deprecate read permissions as well, right? 03:22:19

21 A. My understanding is that the read stream
22 permission was not deprecated in version 2, and it
23 was instead gated by app review.

24 Q. And that means that when an app wanted to
25 access the read stream permission, they asked 03:22:43

CONFIDENTIAL

1 Facebook if they could have access to that 03:22:47
2 permission?

3 A. The way app review worked was developers
4 had to request permission from Facebook to request
5 the permission from users. 03:22:59

6 Q. And how does that provide the user with
7 information on how the read stream permission data
8 is used?

9 MR. BLUME: Objection. Scope.

10 THE DEPONENT: Sorry. Yeah. I'm not 03:23:15
11 sure how to -- how to answer that question.

12 How -- how does what provide the
13 information to the user?

14 Q. (By Mr. Loeser) Well, that -- the
15 gatekeeping. Because this states that a concern 03:23:22
16 was users are often unclear how this information is
17 used, and I'm wondering how the solution Facebook
18 implemented satisfied that concern?

19 MR. BLUME: Objection. Beyond the scope.

20 THE DEPONENT: I think -- again, like 03:23:40
21 what we're reading here is a product manager's view
22 at a time. And Facebook's ultimate decision was
23 that the read stream would remain available behind
24 app review and the experience of granting read
25 stream in an application would remain unchanged. 03:24:03

Page 254

CONFIDENTIAL

1 Q. (By Mr. Loeser) Okay. So when this 03:24:06
2 developer says "There is no good way to make this
3 functionality work with our enhanced focus on user
4 trust," Facebook decided to, nonetheless, continue
5 to provide read stream permission, but with a -- 03:24:16
6 with a gatekeeper added?

7 MR. BLUME: Objection. Form. And scope.

8 THE DEPONENT: Yeah. Not with a -- a
9 gatekeeper, if we're referring to the specific
10 internal tool. 03:24:34

11 I got to go back to what my -- my
12 understanding of what was ultimately launched in
13 April 2014, is that permission remained technically
14 publicly available but was gated behind app review.

15 That's -- that's -- that's my 03:24:55
16 understanding from -- as what happened.

17 In a personal capacity, my understanding
18 is that -- actually, I -- I don't want to
19 speculate. Because like I -- I'm not -- I -- yeah,
20 I don't want to speculate as to exactly how that 03:25:12
21 permission was subsequently granted to
22 applications.

23 Q. (By Mr. Loeser) Okay. So even though
24 the developer that wrote this memo concluded "There
25 is no good way to make this functionality work with 03:25:26

Page 255

CONFIDENTIAL

1 our enhanced focus on user trust," Facebook made 03:25:29
2 the decision to continue to allow use by the
3 developers of read stream permission, correct?

4 A. No. First of all, it's a product manager
5 writing this, not -- not a developer. It's 03:25:44
6 important to clarify.

7 And my -- my point is that the -- the
8 permission remained publicly available as it was
9 documented on the developer website in version 2,
10 but only approved applications could request that 03:25:58
11 permission from users.

12 Q. And the product manager that wrote this
13 memo, according to the cover email, is CK, right?

14 A. Constantin Koukouzelis, yes. CK.

15 Q. And is Constantin -- sorry. 03:26:20

16 Is Constantin still employed by Facebook?

17 A. I do not know if Constantin is still
18 employed by Facebook.

19 MR. LOESER: Okay. We can go to the next
20 exhibit, which has previously been marked 03:26:44
21 Exhibit 7.

22 THE DEPONENT: Actually, I want -- while
23 we're there, I do want to add something.

24 My understanding is that the read stream
25 permission was then deprecated in a subsequent 03:27:05

CONFIDENTIAL

1 version of the Graph API after version 2. 03:27:10

2 Q. (By Mr. Loeser) And -- and when did that
3 occur, Mr. Cross?

4 A. I don't have the date at hand. But it
5 would have been publicly documented on the Facebook 03:27:26
6 developer website.

7 Q. And is that something that just came to
8 your mind, or did you -- did you just read
9 something?

10 How did you recall that? 03:27:35

11 A. I recalled it as we were talking. You
12 didn't ask me specifically about what happened next
13 with read stream. So I didn't consider it in my
14 answers at the time.

15 But on balance, I think important to note 03:27:51
16 that that permission was removed very soon after
17 the launch of API version 2.

18 Q. And -- and why did Facebook remove that
19 permission?

20 A. My understanding is that very few apps, 03:28:09
21 if any, had met the criteria to be granted it.

22 Q. And -- and why would that be?

23 MR. BLUME: Objection. Scope.

24 THE DEPONENT: I can't specify exactly
25 why no applications met the criteria. 03:28:33

Page 257

CONFIDENTIAL

1 Q. (By Mr. Loeser) And Mr. Cross, didn't 03:28:45
2 user posts and user photos provide similar
3 information as read stream?

4 A. No.

5 Q. And why not? 03:29:00

6 MR. BLUME: Objection. Scope.

7 THE DEPONENT: Why not or how not?

8 Sorry, Rob, go -- I didn't hear your
9 objection.

10 MR. BLUME: Scope objection. 03:29:11

11 Q. (By Mr. Loeser) Yeah. How -- how not is
12 a better question.

13 Thank you for posing it.

14 A. The user -- I think the -- the two ones
15 you gave were user photos and user likes; is that 03:29:22
16 right?

17 Q. User posts.

18 A. User posts.

19 User posts and user likes allowed an app,
20 with permission, to access the authenticating 03:29:30
21 user's likes and their posts.

22 Read stream allowed an application, if
23 granted, to access the authenticating user's
24 newsfeed, which is typically made up of posts,
25 videos, photos, et cetera, made by that user's 03:29:52

Page 258

CONFIDENTIAL

1 friends or pages they have liked. 03:29:58

2 Q. Okay. So back to our exhibit,
3 Exhibit 7 -- previously marked Exhibit 7.

4 Do you see that in front of you?

5 A. I do. 03:30:12

6 Q. And for the record, this is an email from
7 KP to Ime Archibong, Jackie Chang, with cc to
8 Chris Daniels and to yourself.

9 "Subject: Re: T0/Special Cases for P3
10 consideration," and attachment is noted, "All apps 03:30:30
11 with friend permissions.xlsx."

12 Do you see that?

13 A. I do see that.

14 Q. This is a string that goes on for a
15 couple of pages. 03:30:43

16 And why don't you take a minute just
17 to -- to review it. I do have some questions that
18 walk through the string. So it's worth having you
19 take a look for context.

20 A. Yeah, of course. 03:30:56

21 Would you mind popping it into the
22 Veritext system so I can scroll on my own?
23 Otherwise we can do it on the Zoom. It just made
24 be more efficient.

25 Q. It -- it should be there in the folder. 03:31:13

Page 259

CONFIDENTIAL

1 A. I'm looking at the marked exclamation -- 03:31:14
2 bang bang -- marked exhibits folder, which is, I
3 think, where I'm supposed to be. I don't see the
4 exhibit there.

5 Maybe I'm supposed to be somewhere else? 03:31:24

6 Q. Yeah. Is there a Day 2 folder that
7 you're looking at?

8 A. I don't see a Day 2 folder.

9 MR. LOESER: Why don't we go off the
10 record for a second. 03:31:33

11 THE VIDEOGRAPHER: Okay. We're off the
12 record. It's 3:31 p.m.

13 (Recess taken.)

14 THE VIDEOGRAPHER: We're back on the
15 record. It's 3:46 p.m. 03:46:21

16 Q. (By Mr. Loeser) Mr. Cross, did you have
17 a chance to look through the email string that is
18 identified as Exhibit 7?

19 A. I didn't look through it, no.

20 Let me -- let me do it now. 03:46:39

21 I have it in the document now.

22 Q. Okay. And just to maybe orient you, the
23 string starts with an email from Jackie Chang on
24 August 21st, 2013, at the end of the string.

25 A. Okay. I've scanned through the document. 03:47:31

CONFIDENTIAL

1 Q. Okay. And so if you go back to the first 03:47:33
2 page of the document, there's a number of people
3 identified here. One is KP, and we've talked a bit
4 about him.

5 But -- but what his -- what was his 03:47:46
6 position, if you know, at this time at Facebook?

7 A. I wouldn't want to give like a perfectly
8 authoritative answer.

9 My understanding is he was a strategic
10 partner manager. 03:47:59

11 Q. Okay. And what -- and what about
12 Ime Archibong?

13 A. Again, I don't want to be -- don't have
14 an authoritative answer to his job title at the
15 time. But my understanding is he was the manager 03:48:09
16 of the strategic partnerships team.

17 Q. Okay. And Jackie Chang?

18 A. Similarly, I'm sure I have the
19 authoritative answer, but my understanding is she
20 was a strategic partner manager on the strategic -- 03:48:26
21 on the platform partnerships team.

22 Q. And Chris Daniels?

23 A. Chris Daniels, again, don't want to give
24 an authoritative answer.

25 My recollection, though, is that he was 03:48:40

Page 261

CONFIDENTIAL

1 the head of business development. 03:48:41

2 Q. Okay. So now if we go to the -- the
3 beginning of the string, if you look at the email
4 that Jackie Chang wrote to Ime and Chris.

5 Do you see that towards the bottom of the 03:48:58
6 string?

7 A. I do.

8 Q. And the -- the subject line isn't evident
9 on that. But if you go up to the email above that
10 from Ime, the subject is "Re: T0/Special Cases for 03:49:12
11 P3 consideration."

12 What is -- do you know what T0 refers to
13 here?

14 A. T0 refers to some partner classification
15 that -- that seems to have been in use at the time. 03:49:29

16 Q. Okay. And having looked through this
17 email, this is a discussion of the changes to the
18 Facebook platform that would deprecate certain
19 APIs, including friend permissions; is that right?

20 MR. DAVIS: Objection. Form. 03:49:53

21 THE DEPONENT: My understanding is this
22 is an email thread discussing potential impact of
23 the -- several changes to the API that were being
24 considered at the -- at the time of this email
25 being written. 03:50:12

Page 262

CONFIDENTIAL

1 Q. (By Mr. Loeser) Okay. And looking at 03:50:13
2 the Jackie Chang's message, at the beginning of
3 this thread, she states "Working with KP to further
4 synthesize P3 impact by breaking out T0 partners
5 with non-standard agreements and specific 03:50:26
6 categories of impact that we should address. KP is
7 working on the pulling the same analysis of the
8 friend data, but we're also working in parallel to
9 parse out key partnerships/scenarios that we should
10 be solving for." 03:50:38

11 Do you see that?

12 A. I see that.

13 Q. So what Jackie Chang is sorting out here
14 is, among other things, which partners would lose
15 access to friend permissions and which ones would 03:50:50
16 not, right?

17 A. Jackie Chang is not making any decisions
18 in this email. What you see here is a conversation
19 between a number of people on the partnerships team
20 attempting to react to a set of potential changes 03:51:09
21 and how they might impact the partner ecosystem.

22 Q. Okay. And Jackie Chang is -- is helping
23 to develop a format for how to decide which
24 partners would have access to friend data, for
25 example, and which ones would not, right? 03:51:28

Page 263

CONFIDENTIAL

1 MR. DAVIS: Objection. Form. 03:51:36

2 THE DEPONENT: This is a group of people

3 attempting to put together their -- their best

4 guess at a framework. But there's nothing that

5 indicates that this was what was ultimately 03:51:49

6 implemented.

7 Q. (By Mr. Loeser) Okay. And -- by the

8 way, if you -- in this document, did you see that

9 link there, https, and then there's a long URL?

10 A. I do. 03:52:06

11 Q. Okay. How -- how would that work? If

12 someone sent you this email at Facebook, is -- is

13 that -- if there's a link in a document, it would

14 be something you could click on and you'd then see

15 the document? 03:52:18

16 A. My understanding is that this is a --

17 some form of online document system, yes.

18 Q. So in -- in Ms. Chang's email to Ime and

19 Chris, she provides a -- some recommendations for

20 how to bucket different partners in this analysis; 03:52:41

21 is that right?

22 A. It's hard to confirm what she -- what

23 she's doing here without seeing the original

24 document.

25 She's referring to -- to tabs, for sure. 03:53:00

Page 264

CONFIDENTIAL

1 But hard to know what -- what was on those tabs and 03:53:03
2 how that relates to what's in the email.

3 Q. So to fully understand this document, you
4 would need the document that is hyperlinked in this
5 email; is that what you're saying? 03:53:14

6 MR. DAVIS: Object to the form.

7 THE DEPONENT: There's references in the
8 email to information in -- in -- in a document,
9 which I don't have the ability to see as of now.

10 Q. (By Mr. Loeser) And would it help you 03:53:31
11 understand the context of this email, if you had
12 the ability to see that document?

13 MR. DAVIS: Object to the form.

14 THE DEPONENT: Potentially --
15 potentially. It would depend on the contents of -- 03:53:42
16 of the -- the document. But it also depends on
17 the -- the question you're asking.

18 Q. (By Mr. Loeser) And do you recall
19 Ms. Chang being involved in this process of coming
20 up with a format to bucket different groups of 03:53:59
21 partners?

22 A. Jackie Chang was on the partnerships
23 team, as was I. And I, yes, recall that a number
24 of people were involved in attempting to assess the
25 proposed changes. 03:54:18

CONFIDENTIAL

1 Q. And if you go to the first heading in -- 03:54:21
2 in her email, under the hyperlink, it says "T0
3 Tab."

4 And you're saying you don't recall what
5 category of partners would fall under the T0 tab? 03:54:34

6 A. I don't recall what category of partners
7 would fall under -- under T0.

8 Q. Okay. Now, it looks like that under this
9 category, T0, there are three different
10 considerations that she -- that Jackie Chang 03:54:56
11 identifies. The first is "Partners with
12 non-standard agreement and their backward
13 compatibility clause."

14 Can you explain what that means?

15 A. I would be speculating as to -- as to 03:55:09
16 exactly what that meant. So hard -- hard to --
17 hard to know.

18 By "backwards compatibility," I
19 understand that to mean contractually agreed notice
20 periods for breaking changes. 03:55:27

21 Q. And then the next bullet is "Existing
22 integrations impacted."

23 How did the proposed changes to the
24 platform impact existing integrations?

25 A. Integrations would have been impacted by 03:55:48

Page 266

CONFIDENTIAL

1 the proposed changes in a number of different ways, 03:55:49
2 depending on the precise purpose and design of the
3 integration.

4 Q. Okay. So it appears that when coming up
5 with this format, Facebook recognized that there 03:56:00
6 were existing integrations and they could be
7 impacted by the changes to the platform; is that a
8 fair read of that bullet?

9 MR. DAVIS: Object to the form.

10 THE DEPONENT: The -- there was 03:56:13
11 expectation at the time that the proposed changes
12 would impact some existing integrations.

13 Q. (By Mr. Loeser) And then the next bullet
14 is "Future integrations in planning."

15 That would refer to integrations that had 03:56:30
16 not yet happened, but that Facebook was perhaps
17 considering doing in the future?

18 A. I don't want to speculate as to exactly
19 what Jackie meant. Maybe -- maybe -- maybe ask
20 her. But -- so, yeah, I think maybe ask her. 03:56:46

21 Q. Okay. She'd probably be the best person
22 to ask about what she wrote in an email?

23 A. I think she'd be the best person to ask
24 about what she wrote in an email.

25 Q. If you look at the next -- next heading, 03:57:02

Page 267

CONFIDENTIAL

1 it's "Risk Assessment Tab." And the first item on 03:57:04
2 that list is "PR risk: Potential partners/cases
3 that may cause negative press."

4 And can you tell me, from Facebook's
5 perspective, what this refers to in the context of 03:57:17
6 a discussion of the introduction of platform 3?

7 MR. DAVIS: Object to the form.

8 THE DEPONENT: It's hard to answer that
9 from Facebook's perspective. I can answer it from
10 a personal perspective. 03:57:37

11 My understanding of that is that there
12 may have been a number of companies, developers
13 that, when impacted by these changes would --
14 which --

15 (Brief interruption.) 03:57:55

16 THE DEPONENT: -- potentially be publicly
17 vocal about the impact on their integration.

18 Q. (By Mr. Loeser) Okay. And then let's
19 look at the next bullet.

20 It says "Strategic Value: Key 03:58:09
21 integrations that use read stream or friend data
22 and drive value to fb. Should decide if we allow
23 certain use cases that are of strategic value to
24 fb."

25 Did I read that correctly? 03:58:24

Page 268

CONFIDENTIAL

1 A. I think you read that correctly, yeah. 03:58:25

2 Q. And so based on this, it appears that one
3 of the considerations for deciding how to -- or
4 whether to continue to allow access to read stream
5 or friend data is the strategic value of the 03:58:43
6 partner to Facebook, correct?

7 MR. DAVIS: Objection. Form. And scope.

8 THE DEPONENT: I wouldn't say that's
9 correct. This is a document containing the
10 opinions and ideas of a specific partner manager 03:59:01
11 around nine months before the -- the changes
12 were -- were introduced. This doesn't, I think,
13 reflect on ultimately how decisions were made.

14 Q. (By Mr. Loeser) What -- what is -- what
15 is strategic value? 03:59:19

16 What is meant by that?

17 A. I don't think I can answer what -- what
18 Jackie meant by strategic value in -- in her email.
19 I think that would be a question for her.

20 Q. And -- and what does Facebook mean by 03:59:32
21 strategic value?

22 A. I think strategic value could be
23 construed to mean many different things. I don't
24 think this is specific -- Facebook does not have a
25 specific definition of what strategic value means. 03:59:46

Page 269

CONFIDENTIAL

1 Q. So Ms. Chang writes "Should decide if we 03:59:48
2 allow certain use cases that are of strategic value
3 to fb."

4 And so can you tell me, from Facebook's
5 perspective, what does it mean for a use case to be 03:59:59
6 of strategic value to Facebook?

7 MR. DAVIS: Objection. Form. And scope.

8 THE DEPONENT: I can't give a -- a
9 company answer to -- to -- to that question.

10 As -- as I testified earlier, I think 04:00:10
11 there's a wide range of things that may be or could
12 be considered strategic value.

13 Q. (By Mr. Loeser) Okay. So what are some
14 of the things that may make sense in -- in the
15 context of this email string? 04:00:21

16 MR. DAVIS: Objection. Form. And scope.

17 THE DEPONENT: I -- I can't answer on
18 behalf of the company relative -- relative to what
19 a partner manager was writing in an email nine
20 years ago. So I think it's hard to answer that 04:00:38
21 question.

22 Q. (By Mr. Loeser) So Facebook does not
23 have an understanding of what it means for a
24 partner to have strategic value to Facebook?

25 MR. DAVIS: Objection. Form. And scope. 04:00:50

CONFIDENTIAL

1 THE DEPONENT: There's not a standard 04:00:53
2 company definition for what construes strategic
3 value.

4 Q. (By Mr. Loeser) And -- and you're not
5 prepared to testify as Facebook's -- as Facebook's 04:01:00
6 representative or designee to testify about what
7 strategic value means to Facebook in the context of
8 its partners?

9 MR. DAVIS: Objection. Form.

10 THE DEPONENT: I could give some 04:01:19
11 examples, per se, that might be considered
12 valuable. But I can't give you, as you're asking,
13 some kind of universal definition of what strategic
14 value is to -- to Facebook.

15 Q. (By Mr. Loeser) What are the examples 04:01:37
16 that you're thinking about?

17 A. So one example might be a mobile device
18 integration to enable a Facebook-branded
19 application to exist on a mobile operating system.

20 Q. Are there other examples? 04:01:59

21 A. There are probably other examples. I
22 don't have any in my head immediately to mind.

23 Q. So you're not prepared to testify, on
24 behalf of Facebook, as to other examples of what
25 strategic value means to Facebook in this context? 04:02:21

Page 271

CONFIDENTIAL

1 MR. DAVIS: Objection. Form. And scope. 04:02:24

2 THE DEPONENT: Well, I mean, be prepared

3 to testify, I -- you know, I think I could give

4 some more examples -- another example if I had a

5 bit more time to think of one. 04:02:39

6 Q. (By Mr. Loeser) What -- what does it

7 mean to drive value to Facebook -- for a partner to

8 drive value to Facebook?

9 MR. DAVIS: Objection. Form. And scope.

10 THE DEPONENT: In the context of -- can 04:02:51

11 you help me understand the context in which you're

12 asking.

13 Q. (By Mr. Loeser) Sure.

14 In the context of Jackie Chang's proposed

15 format for how to decide which partners should 04:02:59

16 receive continued access to friend permissions.

17 MR. DAVIS: Same objections.

18 THE DEPONENT: Yeah. I think drive value

19 to Facebook -- I mean, I think if you want to

20 understand what she meant by that phrase in an 04:03:12

21 email, you should ask Jackie.

22 Q. (By Mr. Loeser) But Facebook doesn't

23 have an answer to that question?

24 MR. DAVIS: Objection. Form. Scope.

25 THE DEPONENT: As I've said, there's a 04:03:28

Page 272

CONFIDENTIAL

1 number of different ways which might be considered 04:03:29

2 drive -- drive value in this -- in this context.

3 Q. (By Mr. Loeser) If you look at the next

4 bullet in Ms. Chang's email, she writes

5 "Competitive/Not Useful to FB: Key integrations 04:03:52

6 that are competitive or drive little value to fb.

7 Good that we're removing, but may need some

8 additional considerations on wind-down time."

9 Do you understand what she's referring to

10 here? 04:04:08

11 A. I don't understand what she's -- well, I

12 don't understand -- I can't be sure what she's

13 referring to here.

14 Q. What would it mean for a key integration

15 that is competitive or drives little value to 04:04:23

16 Facebook?

17 MR. DAVIS: Objection. Form. Scope.

18 THE DEPONENT: So hard to give a company

19 answer to that question.

20 On a personal level, one example that 04:04:34

21 might come to mind is where a user might be able to

22 browse their newsfeed in another -- on another

23 platform or -- or app in another application,

24 which -- which meant the user would be browsing

25 their newsfeed in a non-Facebook app. 04:05:05

Page 273

CONFIDENTIAL

1 Q. (By Mr. Loeser) And that would be 04:05:10
2 competitive because that would then cause people to
3 use that other app instead of Facebook, or that
4 other platform instead of Facebook?

5 A. It might allow a user to browse their 04:05:25
6 newsfeed in -- in an app that wasn't provided by
7 Facebook.

8 Q. Now, let's turn to the beginning of the
9 email string and look at the email from KP.

10 And it looks like that -- that the first 04:05:42
11 thing he does is he adds you to this conversation;
12 is that right?

13 A. It looks like he added me to the
14 conversation, yes.

15 Q. That's what the "+ Simon" means at the 04:05:52
16 top of this email?

17 A. That would be my interpretation, yes.

18 Q. Okay. So if we look at the second
19 paragraph of KP's email, he writes, "A little
20 update from my end, and how I think we should tie 04:06:03
21 this to what Jackie has put together. Simon
22 managed to pull a list of 40k+ apps that request
23 and make use of the friend_permissions. You can
24 see all those apps in the attached. The most
25 interesting data points having reviewed the top 250 04:06:23

Page 274

CONFIDENTIAL

1 apps are the following (I took the liberty to make 04:06:25
2 a recommendation as well by the way - the numbers
3 in the brackets are the percentage of the apps
4 reviewed under this category)."

5 Do you see that? 04:06:38

6 A. I do see that.

7 Q. And so KP refers to a list that you put
8 together that had a full list of all the "apps that
9 request and make use of the friends_permissions";
10 is that right? 04:06:59

11 A. I'm not sure it is a full list. It's a
12 list of 40K-plus apps as -- well, as per -- as per
13 the copy here. Again, I don't see the -- the
14 document attached.

15 Q. Okay. And so -- and 40K apps mean 04:07:14
16 40,000 -- more than 40,000 apps that allowed access
17 to friend permissions?

18 A. Well, this mean 40,000 applications that
19 were in some way requesting friend permissions from
20 users. 04:07:32

21 Q. And attached to this document is a
22 spreadsheet that -- that, based on this email,
23 appears to be the list that you put together,
24 correct?

25 A. That would make sense, yes. 04:07:44

CONFIDENTIAL

1 Q. And do you recall how you put together 04:07:46
2 that list?

3 A. I -- answering in a -- again, on -- on a
4 personal recollection here, I would have used one
5 of Facebook's internal data analysis tools to pull 04:07:57
6 this list together.

7 Q. Okay. Which tool would you have used?

8 A. My recollection is, I would have used
9 HiPal.

10 Q. And is that a tool that could still be 04:08:16
11 used to identify any app that had access to friend
12 permissions?

13 MR. DAVIS: Objection. Form.

14 THE DEPONENT: I don't know. I don't
15 think HiPal as a -- as a -- as a tool exists 04:08:30
16 anymore. And I don't know what information it
17 would grant access to today.

18 Q. (By Mr. Loeser) Let's -- I'm sorry. I
19 didn't mean to interrupt you.

20 Let's work down KP's email a little bit 04:08:44
21 and go to the -- the -- the No. 3 on here. And
22 this -- am I reading this correctly, that -- that
23 KP went through the list and reviewed the top 250
24 apps and -- do you know what he means by the "top
25 250 apps"? 04:09:08

Page 276

CONFIDENTIAL

1 MR. DAVIS: Objection. Form. 04:09:10

2 THE DEPONENT: I do not know what he
3 means by the "top 250 apps."

4 Q. (By Mr. Loeser) And nonetheless, he
5 breaks the apps into -- it looks like nine 04:09:19
6 different categories; is that right?

7 A. I see nine bullets on this email, yeah.

8 Q. And the third category is "Strategic."
9 Do you see that?

10 A. I see that. 04:09:37

11 Q. And he writes "from MSFT" -- which I
12 assume is Microsoft; is that right?

13 A. I would assume that would be Microsoft.

14 Q. So from Microsoft, "to Yahoo!, to
15 Pinterest, Path, Klout and the likes. Some of them 04:09:50
16 should obvious not have access such as Myspace,
17 Twitter, Youtube, etc. In particular for Strategic
18 partners we should use the framework developed by
19 Jackie. RECOMMENDATION: User Jackie's framework."

20 Do you see that? 04:10:11

21 A. I do see that.

22 Q. So does this suggest to you that KP
23 believed that the framework for sorting partners
24 into buckets or deciding whether they have
25 continued access to friend permissions, was the one 04:10:20

Page 277

CONFIDENTIAL

1 that had been proposed by Jackie Chang? 04:10:22

2 MR. DAVIS: Objection. Form.

3 THE DEPONENT: I think the context,

4 again, of this email is important. This is a -- a

5 team of people, nine months before changes were 04:10:32

6 announced, attempting to find some way to structure

7 their thinking.

8 In this email, he's referring to,

9 you know, Jackie's framework. But it's not clear

10 to me what Jackie's framework is. And it's also 04:10:52

11 not clear whether or not any of this was ultimately

12 used.

13 Q. (By Mr. Loeser) Okay. Well, let's go up

14 to the top of KP's email.

15 He says "Thanks a lot, Jackie. This is 04:11:05

16 great - I have included the additional info for the

17 strategic partners in the attached spreadsheet as

18 well (for completeness)."

19 Do you see that?

20 A. I do see that. 04:11:19

21 Q. So he received a format from Jackie,

22 right?

23 MR. DAVIS: Objection. Form.

24 THE DEPONENT: I mean, all I have to go

25 on to answer your questions is what -- what's on 04:11:28

Page 278

CONFIDENTIAL

1 the screen here. 04:11:30

2 I think Jackie or KP need to answer the
3 specifics.

4 Q. (By Mr. Loeser) And you can confirm, on
5 behalf of Facebook, that in this email KP 04:11:41
6 recommended using Jackie's framework for the
7 category described in KP's email as strategic,
8 right?

9 MR. DAVIS: Objection. Form.

10 THE DEPONENT: I can confirm this email 04:11:54
11 exists. Sorry. I can confirm that this document
12 exist.

13 But like I can't confirm anything about
14 the precise nature of a framework or if that was
15 used in any way. 04:12:10

16 Q. (By Mr. Loeser) Right.
17 And I asked you a slightly different
18 question.

19 It was, can you confirm that KP
20 recommended the use of Jackie's framework? 04:12:17

21 MR. DAVIS: Objection. Form.

22 THE DEPONENT: Again, all I have to go on
23 is what's on the page here. So I would be
24 confirming -- confirming what we all can read with
25 our own eyes. I can't confirm, on behalf of 04:12:33

Page 279

CONFIDENTIAL

1 Facebook, anything more than that. 04:12:37

2 Q. (By Mr. Loeser) And so if Facebook
3 wanted to figure out if Jackie's framework was
4 used, what would Facebook do to identify the answer
5 to that? 04:12:45

6 MR. DAVIS: Objection. Form.

7 THE DEPONENT: You want me to stand by
8 what you mean by Jackie's framework was used.

9 Q. (By Mr. Loeser) Well, is there something
10 confusing about that statement? 04:12:55

11 A. Yes.

12 Q. Okay. Well, let's break it down.

13 There's a framework discussed in this
14 email, right?

15 A. There's the -- there's a framework 04:13:11
16 discussed. But it's not clear to me exactly what
17 that framework is.

18 Q. Okay. But there is a framework that's
19 indicated in Jackie's email to Ime Archibong,
20 right? 04:13:27

21 MS. DAVIS: Objection. Form.

22 THE DEPONENT: She doesn't make a
23 reference to a framework.

24 Q. (By Mr. Loeser) If you go back to the
25 heading we were looking at, No. 3, KP refers to 04:13:52

Page 280

CONFIDENTIAL

1 "Jackie's framework," right? 04:13:56

2 A. I can see the term here use -- "User
3 Jackie's framework." I can read that on the page.

4 Q. Okay. And at the beginning of this
5 string is a -- is a description of how to bucket 04:14:06
6 different partners, based upon the types of
7 agreement they had, the impact and the risk
8 assessment; is that right?

9 MR. DAVIS: Objection. Form.

10 THE DEPONENT: As we've discussed, 04:14:28
11 there's a set of bullets on this page and a link to
12 a document. I'm not sure I construe that as a
13 framework.

14 Q. (By Mr. Loeser) Okay. It appears that
15 KP referred to it as a framework, right? 04:14:39

16 A. When he's referring to Jackie's
17 framework, technically he could be referring to
18 something else. He could be referring to this.

19 It's hard to know. This is an email
20 thread from nine years ago. And if you want to 04:14:51
21 know what these people meant, I would ask them.

22 Q. Well, why don't we look at the end of
23 KP's email, and he writes, "As a general note, I
24 think we need to carry on with this exercise to
25 figure out if there are more apps falling under 04:15:19

Page 281

CONFIDENTIAL

1 different verticals that we have not identified 04:15:21
2 yet, before we can make a decision for all the apps
3 in this vertical. For both the Newsfeed and the
4 Friends permission audit, we can use Jackie's
5 framework to assess KEEP/REMOVE for those partner 04:15:32
6 falling under the Strategic tabs and then make up a
7 decision based on the criteria outlined by Jackie
8 below."

9 Do you see that?

10 A. I read -- I see it on the page. 04:15:44

11 Q. So it seems pretty clear that KP is
12 referring to the framework that Jackie presented
13 below, right?

14 MR. DAVIS: Objection. Form.

15 THE DEPONENT: Again, Jackie doesn't 04:15:55
16 refer to anything about her work as a -- as a
17 framework.

18 Q. (By Mr. Loeser) KP refers to her work as
19 a framework; is that right?

20 A. KP refers to a framework. It's not 04:16:07
21 abundantly clear if he means Jackie's work as -- as
22 evidenced below.

23 Q. Okay. So let's look again.

24 "We can use Jackie's framework to assess
25 KEEP/REMOVE for those partner falling under the 04:16:23

Page 282

CONFIDENTIAL

1 Strategic tabs and then make up a decision based on 04:16:26
2 the criteria outlined by Jackie below."

3 Do you see that?

4 A. I see that.

5 Q. And are there criteria outlined by Jackie 04:16:35
6 below?

7 MR. DAVIS: Objection. Form.

8 THE DEPONENT: Again, like -- I can read
9 an email. If you want to understand precisely what
10 the people in it meant, I would speak to them. 04:16:50

11 Q. (By Mr. Loeser) Yeah.

12 I'm more interested in what Facebook
13 understands, based upon the work of the employees
14 tasked with trying to decide which partners would
15 continue to have access to friends permissions and 04:17:02
16 which would not.

17 So are you not prepared to testify about
18 Facebook's understanding of how those partners were
19 sorted?

20 MR. DAVIS: Objection. Form. And scope. 04:17:11

21 THE DEPONENT: I'm prepared to testify
22 that there's a group of people in a partnerships
23 team attempting to put together a way of
24 understanding how these proposed -- the -- the
25 changes proposed at the time might impact the 04:17:25

Page 283

CONFIDENTIAL

1 partner ecosystem. 04:17:28

2 Q. (By Mr. Loeser) And so did -- did --

3 A. There's no --

4 Q. Sorry. Go ahead.

5 A. Sorry. Go on. 04:17:35

6 Q. Did Facebook use Jackie Chang's framework
7 for deciding which strategic partners would have
8 access to friend and newsfeed permissions?

9 A. No.

10 MR. DAVIS: Objection. Form. 04:17:49

11 THE DEPONENT: Sorry.

12 I don't recall -- again, hard -- hard to
13 answer fully on behalf of the company here.

14 My understanding is that this was not
15 used in any way to make decisions. 04:17:59

16 I think one of the things that's
17 important to know here is that, again, this email
18 is from August 2013, which is around, you know,
19 nine or more months before the changes were
20 announced. 04:18:19

21 At this time the -- the -- the changes
22 that were proposed were somewhat different in how
23 they were ultimately rolled out. Much, much
24 changed between this time and April 30th, 2015.

25 Q. (By Mr. Loeser) Okay. Well, let's make 04:18:48

Page 284

CONFIDENTIAL

1 sure we understand what's going on here at this 04:18:49

2 stage.

3 Would you consider this a planning stage

4 for platform 3?

5 MR. DAVIS: Objection. Form. 04:18:58

6 THE DEPONENT: Again, I don't know if the

7 company has a view on that.

8 On a personal level, I would -- I -- my

9 understanding of the conversations at the time is

10 that this is part of the preparation for 04:19:15

11 understanding what the impact those changes might

12 have on the developer ecosystem.

13 So it's certainly before the changes were

14 ultimately announced and before many of the

15 important details of how they would be implemented 04:19:41

16 had been decided.

17 Q. (By Mr. Loeser) Okay. And so Ms. Chang

18 developed what KP refers to as a framework for

19 sorting out which partners and apps would continue

20 to have access to friend permissions and -- is 04:19:52

21 that -- is that right?

22 MR. DAVIS: Objection. Form.

23 THE DEPONENT: As I previously testified,

24 Jackie seems to have put together a document with

25 some categorization in it. She doesn't refer to 04:20:09

Page 285

CONFIDENTIAL

1 that as a framework. KP refers to "a" framework. 04:20:12

2 It could be that he's talking about Jackie's work.

3 But to confirm that you'd need to speak

4 to KP or Jackie.

5 Q. (By Mr. Loeser) Okay. And the -- and 04:20:25

6 the people that were involved in the development of

7 the criteria used to sort partners for deciding who

8 would have access to friend permissions were

9 Chris Daniels, Ime Archibong, KP, Jackie Chang and

10 yourself? 04:20:43

11 MR. DAVIS: Objection. Form.

12 THE DEPONENT: This document represents

13 an email thread with some people on it having

14 that -- having a discussion about how to

15 potentially categorize apps that might be affected 04:20:55

16 by the deprecation.

17 Q. (By Mr. Loeser) And, sir, who made the

18 final decision on the framework for -- to be used

19 for determining which apps or partners would

20 continue to have access to deprecated permission, 04:21:09

21 such as friend sharing?

22 MR. DAVIS: Objection. Form.

23 THE DEPONENT: I'm not sure how to answer

24 that question. Yeah. I'm not sure how to answer

25 that question on behalf of the company. 04:21:25

Page 286

CONFIDENTIAL

1 In a -- in a personal capacity I -- 04:21:30
2 you know, this -- this -- I don't recall specific
3 framework being used.

4 Q. (By Mr. Loeser) And my question was a
5 little different. And it is in your capacity as 04:21:43
6 Facebook's designee.

7 I would like to know who made the final
8 decision on the framework to be used for
9 determining which apps or partners would continue
10 to have access to deprecated permissions? 04:21:58

11 MS. DAVIS: Objection --

12 Q. (By Mr. Loeser) I assume they're --
13 well, let me ask it this way.

14 Was there a framework used by Facebook
15 for determining which app -- apps and partners 04:22:03
16 would continue having access to deprecated
17 permission?

18 MR. DAVIS: Objection. Form.

19 THE DEPONENT: I don't -- I don't recall
20 a specific framework being used to make those 04:22:14
21 decisions.

22 Q. (By Mr. Loeser) So is it Facebook's
23 testimony that the determination was ad hoc?

24 MR. DAVIS: Objection. Form.

25 THE DEPONENT: In the end, the -- there 04:22:29

Page 287

CONFIDENTIAL

1 were -- the -- the way the decisions were made were 04:22:33
2 a bunch of conversations between the partnerships
3 team and the platform leadership team to determine
4 what made sense.

5 Q. (By Mr. Loeser) Okay. And based upon 04:22:47
6 the string that we've gone through, the -- the
7 recommendation from Jackie Chang and the
8 recommendation from KP was to take into account the
9 strategic value of the partner to Facebook when
10 deciding whether to grant continued access to 04:23:10
11 deprecated permissions; is that right?

12 MR. DAVIS: Objection. Form.

13 THE DEPONENT: No.

14 Q. (By Mr. Loeser) You don't see that
15 discussion of strategic value in the email string 04:23:22
16 we just went through?

17 A. I see the discussion in the email thread.
18 But as I testified earlier, my understanding is
19 that this is a group of people attempting to put
20 together a way to think about the impact of these 04:23:41
21 changes on the developer ecosystem.

22 The result of this work, nine months
23 before the changes went into effect, were based on
24 their first pass understanding of the proposed
25 changes, many of which were different in form when 04:24:05

Page 288

CONFIDENTIAL

1 ultimately implemented. 04:24:07

2 Q. And so is it Facebook's testimony that
3 strategic value was not a consideration taken into
4 account when deciding whether to provide continued
5 access to deprecated permissions? 04:24:18

6 MR. DAVIS: Objection. Form.

7 THE DEPONENT: As we discussed
8 previously, the -- from my discussions with all of
9 the people involved -- well, many of the people
10 involved at the time and reading other internal 04:24:33
11 documents, is that a very, very small number of
12 applications were ultimately granted an extension.

13 And there were, to my understanding, only
14 two reasons. The -- I have heard as to the reasons
15 why those extensions were granted. We've discussed 04:24:53
16 them previously.

17 MR. LOESER: Okay. And I'm going to have
18 the court reporter read back my question to you,
19 and if you could just answer the question directly,
20 please do. 04:25:06

21 MR. DAVIS: And my objection, please.

22 (Record read as follows:

23 "QUESTION: And so is it Facebook's
24 testimony that strategic value was
25 not a consideration taken into 04:24:12

Page 289

CONFIDENTIAL

1 account when deciding whether to 04:24:15
2 provide continued access to
3 deprecated permissions?
4 MR. DAVIS: Objection. Form.")
5 THE DEPONENT: It's hard to answer. 04:25:36
6 I'm -- I'm not sure I -- I can't answer a question
7 with -- with -- can you please -- given the
8 objection, could you ask the question in a way that
9 doesn't generate an objection?
10 Q. (By Mr. Loeser) Would that -- if I had a 04:25:51
11 magic wand, but I don't.
12 SPECIAL MASTER GARRIE: Actually --
13 MR. LOESER: No, there's nothing --
14 SPECIAL MASTER GARRIE: No. Actually,
15 just answer the question. 04:25:58
16 THE DEPONENT: Okay. Sorry.
17 Could you ask the question again then.
18 THE COURT REPORTER: Do you want me to
19 read it back?
20 MR. LOESER: Sure. Go ahead. 04:26:11
21 Thank you.
22 SPECIAL MASTER GARRIE: And -- and in
23 your capacity as a 30(b)(6).
24 Go ahead. Read the question.
25 (Record read as follows: 04:26:43

Page 290

CONFIDENTIAL

1 "QUESTION: And so is it Facebook's 04:27:09
2 testimony that strategic value was
3 not a consideration taken into
4 account when deciding whether to
5 provide continued access to 04:24:17
6 deprecated permissions?")
7 MR. DAVIS: Object to the form.
8 SPECIAL MASTER GARRIE: Overruled. Ask
9 the question again.
10 (Record read as follows: 04:24:21
11 "QUESTION: And so is it Facebook's
12 testimony that strategic value was
13 not a consideration taken into
14 account when deciding whether to
15 provide continued access to 04:24:17
16 deprecated permissions?")
17 THE DEPONENT: I don't -- how do I want
18 to say this.
19 I don't think I can answer -- can confirm
20 the strategic value is not in any way taken into 04:27:19
21 account. Strategic value has not been defined or
22 determined specifically, as we discussed earlier.
23 Q. (By Mr. Loeser) And how does Facebook
24 define strategic value in the context of deciding
25 whether to grant continued access to deprecated 04:27:39

Page 291

CONFIDENTIAL

1 permissions to partners? 04:27:42

2 MR. DAVIS: Object to the form.

3 THE DEPONENT: I don't know how to define
4 strategic value in determining how to -- how these
5 decisions were made. 04:27:59

6 Q. (By Mr. Loeser) And when you say "I
7 don't know," you mean Facebook doesn't know?

8 A. To the best -- I -- I have spoken to a
9 number of people involved in -- in this initiative
10 and -- and read -- read documents. 04:28:22

11 And my understanding as to why extensions
12 to the deprecations were granted is because there
13 would be an impact on -- for the friend
14 permissions, an impact on the user experience if
15 there was no extension granted or where the partner 04:28:40
16 was making use of them for a -- a use case that
17 involved compliance or legal considerations.

18 Q. And those reasons you just mentioned did
19 not include strategic value to Facebook, right?

20 A. Again, I -- I don't -- there's no single 04:29:08
21 definition for what strategic value meant. I mean,
22 you're asking me a question that -- that's very
23 hard to answer.

24 I mean, if you could ask a more specific
25 question, maybe I'll be able to give you a better 04:29:22

Page 292

CONFIDENTIAL

1 answer. 04:29:25

2 Q. Well, you just gave two reasons. Neither
3 one of those is of strategic value to Facebook,
4 right?

5 A. I'm not sure I agree. One of the 04:29:32

6 benefits of allowing user experiences not to be
7 broken by the migration is that users don't have
8 broken user experiences, and those developers have
9 the time to wind down their integrations

10 gracefully, maintaining strong relationships with 04:29:54
11 developers. That might be considered strategic
12 value.

13 Q. And was that considered strategic value
14 by Facebook in the context of deciding which apps
15 would have access to deprecated permissions? 04:30:09

16 MR. DAVIS: Objection.

17 THE DEPONENT: Again, I don't -- I don't
18 feel I have -- I don't feel that I can answer with
19 a definition of what strategic value is on behalf
20 of the company. As we discussed earlier, that 04:30:20

21 frame -- that framing could mean many things in
22 many different contexts.

23 MR. LOESER: Okay. Well, let's move on
24 to the next exhibit, which is Exhibit 11.

25 /////

Page 293

CONFIDENTIAL

1 Q. (By Mr. Loeser) And Mr. Cross, you 04:31:00
2 should be looking at what's previously been marked
3 as Exhibit 11, which is an email from you to
4 Ime Archibong, Jackie Chang and KP, dated
5 September 3rd, 2013, "Subject: Re: P3.0 Rollout 04:31:07
6 Planning."
7 Do you see that?
8 A. I see that.
9 Q. In your email you state "Here's my draft
10 deck for review tomorrow. Yes, it's a little 04:31:20
11 longer than hoped, but I feel it needs to
12 standalone when passed around beyond Chris,
13 assuming he's OK with this strategy. Feedback
14 welcome, will try and incorporate ASAP."
15 Do you see that? 04:31:34
16 A. I see that.
17 Q. Okay. So this is an email that you sent
18 with a draft deck regarding the rollout of
19 platform 3; is that right?
20 A. That is correct, yes. 04:31:47
21 Q. Okay. And why don't we turn to the deck
22 itself, which has previously been marked
23 Exhibit 12.
24 /////
25 /////

CONFIDENTIAL

1 MR. DAVIS: And Mr. Loeser and 04:32:03
2 Ms. Daniel, could I get these in Exhibit Share,
3 please.
4 MS. DANIEL: Yes, they're there.
5 MR. LOESER: Yeah, they're there. 04:32:16
6 You need to look in Day 1 folder because
7 for some reason --
8 SPECIAL MASTER GARRIE: Before we --
9 yeah. Before we move forward, Counsel Davis,
10 just -- can you confirm that you have access 04:32:29
11 because that's pretty critical for you to do your
12 job.
13 MR. BLUME: Okay. I -- I have them now
14 in the Day 1 folder.
15 Apologies. Thank you. 04:32:40
16 SPECIAL MASTER GARRIE: Don't apologize.
17 You got to work.
18 Q. (By Mr. Loeser) Okay. So we're -- we're
19 going to bring up Exhibit 12, which is the -- the
20 deck that you prepared, Mr. Cross. 04:32:47
21 And if we look at the first page, it
22 states "Platform 3.0, Planning, Preparation &
23 Execution"; is that right?
24 A. That's what I see.
25 Q. And do you recall preparing this slide 04:33:04

Page 295

CONFIDENTIAL

1 deck? 04:33:06

2 A. I don't recall preparing it. But I've
3 seen it recently.

4 Q. And you saw it for your -- preparing for
5 your testimony today? 04:33:15

6 A. That's correct.

7 Q. So on -- if you go to slide -- the second
8 page, which I think is probably considered
9 slide 1 of the deck, one of the headings is
10 "Capabilities Cleanup." 04:33:34

11 Do you see that?

12 A. I see that.

13 Q. And it states "Audit existing private API
14 whitelists. Who has what and why? GOAL: Cleaner,
15 more equitable, more supportable Platform." 04:33:44

16 Do you see that?

17 A. I see that.

18 Q. And the first bullet below that says
19 "Full audit is huge task, value unclear," right?

20 A. I see that. 04:33:58

21 Q. And why was it a huge task?

22 A. I think I need to answer this in a
23 personal capacity, rather than Facebook. I don't
24 think Facebook has a view on that.

25 In my personal capacity, my recollection 04:34:12

Page 296

CONFIDENTIAL

1 is that there were what was seen at the time to be 04:34:16
2 a relatively large number of capability app pairs
3 and going through each of them manually might take
4 a significant amount of energy.

5 Q. And you state the value was unclear. 04:34:37

6 Why -- why did Facebook believe the value
7 was unclear?

8 A. Well, I'm not sure Facebook has a view on
9 that.

10 Again, from a personal capacity, when I 04:34:50
11 was writing this, my -- my recollection is that the
12 value of doing such an -- an audit might -- wasn't
13 necessarily obvious or understood.

14 Q. And did the audit occur?

15 MR. DAVIS: Objection. Form. 04:35:17

16 THE DEPONENT: Some work was done to
17 improve the capability tool and remove some
18 capabilities from apps that weren't using them.

19 Q. (By Mr. Loeser) Let's look at the next
20 slide which has the header "P3.0 04:35:32
21 Launches/Deprecations."

22 Do you see that?

23 A. Yes.

24 Q. And there's a list here, in the middle of
25 the slide, "Public API Deprecations," and it states 04:35:42

Page 297

CONFIDENTIAL

1 "i.e. Currently public APIs which will become 04:35:46

2 whitelist only or deprecated entirely," right?

3 A. I see that.

4 Q. So in the planning phase for the rollout

5 here, Facebook had identified that there would be 04:35:58

6 APIs that were deprecated entirely, right?

7 A. At this time, the changes to the platform

8 were in a proposed state. They -- well,

9 ultimately -- was announced and launched changed

10 significantly over time. And certainly between the 04:36:24

11 time that this deck was created and the ultimate

12 announcements.

13 Q. Okay. And my question was simpler

14 really. I'm just -- I want to make sure that -- in

15 the planning phase, Facebook identified that -- 04:36:39

16 that some apps would become whitelist only or

17 some -- some -- some APIs would become whitelist

18 only and others would be deprecated entirely. That

19 was the structure that Facebook came up with,

20 right? 04:36:53

21 MR. DAVIS: Objection. Form.

22 THE DEPONENT: Again, in -- I don't think

23 Facebook came up with that structure.

24 And, again, in personal capacity, my

25 understanding at the time is that it was proposed 04:37:05

Page 298


```
1      that some permissions would be privatized or                                04:37:07
2      deprecated and some APIs were proposed to be
3      privatized or -- or deprecated.
```

4 Q. (By Mr. Loeser) Okay. So there was a
5 decision being made as to which APIs would be 04:37:24
6 publicly deprecated. And while that decision
7 was -- was being made, Facebook was also evaluating
8 which ones would be still available but whitelisted
9 or privatized?

| | | |
|----|-----------------------------|----------|
| 10 | MR. DAVIS: Objection. Form. | 04:37:41 |
|----|-----------------------------|----------|

11 THE DEPONENT: Can you be specific as
12 to -- to the time you're -- you're talking about.

13 Q. (By Mr. Loeser) Yes.

14 I'm talking about the planning phases for
15 the introduction of Graph API version 2. And it's 04:37:52
16 a pretty -- I -- I -- I hope it's a simple question
17 because I'm hoping -- I'm trying to have it be a
18 simple question.

| | | |
|----|---|----------|
| 19 | But my question is simply, in the | |
| 20 | planning phase, Facebook was -- identified a number | 04:38:02 |
| 21 | of APIs that it intended to pub- -- to deprecate, | |
| 22 | right? | |

23 A. There was a team working on coming up
24 with the proposals for how to simplify the
25 platform. And as part of that, there were 04:38:21

CONFIDENTIAL

1 proposals about APIs and permissions that -- that 04:38:23
2 would be privatized or deprecated. At the time
3 this deck was written, no decisions had been made.

4 Q. Okay. And when you say "privatized" or
5 "deprecated," is that an expression you're using 04:38:36
6 that's synonymous with whitelisted?

7 MR. DAVIS: Objection. Form.

8 THE DEPONENT: In -- when -- in this
9 context, when I refer to "privatized," I'm
10 referring to something that would be available only 04:38:49
11 to apps that had been -- only to apps developers
12 that had been whitelisted in some way.

13 Q. (By Mr. Loeser) And then this -- this
14 table below the "Public API Deprecations" list --
15 under the heading "Public API deprecations," it 04:39:10
16 lists through a variety of permissions that, at
17 this stage anyway, Facebook was intending to -- to
18 deprecate; is that right?

19 MR. DAVIS: Objection. Form.

20 THE DEPONENT: This is a list of 04:39:25
21 permissions and APIs that at the time were being
22 considered for deprecation or privatization.

23 Q. (By Mr. Loeser) Okay. And so, for
24 example, for friends_star permissions, this also
25 indicates the number of apps requesting these 04:39:39

CONFIDENTIAL

1 permissions per day, and it says 18,067. 04:39:41

2 Do you see that?

3 A. I do see that.

4 Q. And how was Facebook able to identify the
5 number of apps requesting those permissions per 04:39:50
6 day?

7 A. This analysis was -- was -- was pulled by
8 me so I should answer that in a -- in a personal
9 capacity.

10 My recollection is there was a mechanism 04:40:01
11 to determine if a permission had been displayed to
12 a user in the authentication in the GDP login
13 dialogue. And my recollection is that's the
14 information I was using to determine whether or not
15 an app was actively requesting that permission from 04:40:19
16 users.

17 Q. And when you say "GDP," is that -- what
18 is that?

19 A. Sorry. Yeah. Good -- good
20 clarification. 04:40:30

21 That's jargon. That's the -- what's
22 otherwise known as the Facebook login dialogue.
23 It's the log -- it's the dialogue that a user sees
24 before -- when they grant permissions to
25 applications. 04:40:43

Page 301

CONFIDENTIAL

1 Q. And then the next column has the heading 04:40:44
2 "User app-pair permission-set impressions/day."
3 And for "friend_*permissions," it's 6,475,108.
4 Explain what that column represents and
5 how you were able to identify the number. 04:40:59
6 A. Give me a few seconds to -- to read this
7 and see if I can remember exactly how this was
8 pulled together.
9 Unlike the first column, I don't
10 immediately recall how this was computed. 04:41:15
11 So this refers to -- reading this has
12 jogged my memory. Reading this refers to the
13 number of distinct users for an application, across
14 all of the applications that requested that -- that
15 group of permissions from users on -- when the 04:41:55
16 analysis was done.
17 Q. Okay. And what was the tool that you
18 used to determine that?
19 A. I would have used the HiPal tool to query
20 this data. 04:42:19
21 Q. And if you wanted to find that
22 information today at Facebook, what would you do?
23 A. I would ask one of the engineers on the
24 platform team if they could do the analysis or find
25 someone who could do the analysis. 04:42:34

CONFIDENTIAL

1 Q. And who's the one that you think would be 04:42:36
2 the most knowledgeable?

3 A. The engineer I would immediately go speak
4 to is Steven Elia. But he would almost certainly
5 direct me to someone more knowledgeable than him. 04:42:46

6 Q. Let's go to the next slide, which has the
7 heading "Preparing for the Deprecations." And the
8 first line under the heading writes "30k+" -- so
9 30,000-plus -- "apps are currently using
10 to-be-deprecated features. Propose we review these 04:43:06
11 apps and classify each as:"

12 Did I read that correctly?

13 A. You read that correctly.

14 Q. And so then you come up with a -- or you
15 present here a classification of -- of the apps 04:43:17
16 that are currently using to-be-deprecated features;
17 is that right?

18 A. Yeah. Again, in a personal capacity,
19 my -- my recollection is that I was proposing a
20 potential way to -- to categorize the apps using 04:43:38
21 to-be-deprecated features.

22 Q. Okay. And the first bullet is
23 "Pre-enforce." And you write "use existing
24 policies to revoke apps access (note: no appetite
25 to do this at" the -- "at present).". 04:43:54

Page 303

CONFIDENTIAL

1 Explain what you mean there. 04:43:57

2 A. Again, in a personal capacity, my
3 recollection is that there was some discussion
4 about whether or not there would be a way to make
5 changes in advance of some form of public 04:44:18
6 announcement. But I don't recall the specifics.

7 What I think is important to remember is
8 that, again, this deck, as I understand it, from
9 the time stamp -- the date stamp in the bottom left
10 is, you know, eight months in advance of ultimately 04:44:33
11 how the deprecations were announced.

12 And at the time, my recollection is that
13 the ways in which those changes would be rolled out
14 was very different to how it ultimately was rolled
15 out. And at this point, therefore, some different 04:44:54
16 options were being considered.

17 Q. Fair to say that the introduction of the
18 new platform was an extremely important event for
19 Facebook, right?

20 MR. DAVIS: Objection. Form. 04:45:11

21 THE DEPONENT: The updates that were
22 announced on April the 30th, 2015, were -- were
23 certainly seen as a significant change to the
24 developer platform and a significant step forward
25 for -- for users. 04:45:28

Page 304

CONFIDENTIAL

1 Q. (By Mr. Loeser) And Facebook did a 04:45:31
2 significant amount of planning and preparation in
3 advance of rolling out that platform, right?

4 A. Given the nature of the changes, a good
5 number of people were involved in determining what 04:45:48
6 they were. How to roll them out. And -- and how
7 to manage the developer ecosystem's transition to
8 the new world.

9 Q. And this deck that you prepared was part
10 of that planning and preparation for the rollout of 04:46:04
11 the new platform, right?

12 A. This deck represents a very, very early
13 version of the thinking as to how these changes
14 might be rolled out.

15 Q. So when you say "use existing policies to 04:46:20
16 revoke apps access," in order to revoke apps access
17 with existing policies, that would mean that the
18 app was violating the existing policies, right?

19 MR. DAVIS: Objection. Form.

20 THE DEPONENT: Facebook doesn't have a 04:46:40
21 view on what is meant here. And I don't recall
22 what I meant when I was -- I was writing this.

23 This is the only time I've seen a
24 reference to pre-enforcement anywhere. So it's
25 possible that this was a -- an unusual suggestion 04:46:57

Page 305

CONFIDENTIAL

1 on my part. I do not recall what caused me to add 04:47:03
2 this bullet into the deck.

3 Q. (By Mr. Loeser) So it wouldn't make
4 sense to -- to revoke app access with existing
5 policies, if those policies weren't being violated, 04:47:11
6 would it?

7 MR. DAVIS: Objection. Form.

8 THE DEPONENT: I think typically
9 revoking, changing what an app can do outside of a
10 policy would be certainly an usual thing to do. 04:47:27

11 Q. (By Mr. Loeser) So your next bullet is
12 "Standard," and then it says "(default)."

13 "Apps are notified on P-day and have
14 n-days to comply (vast majority of apps)."

15 And I'm going to interpret this for you 04:47:43
16 and you tell me if I'm right or wrong.

17 What you're suggesting here is that on
18 the day that the new platform is introduced,
19 telling apps that they have a number of days to
20 comply with the requirements of the new platform; 04:47:54
21 is that right?

22 A. That's right. And ultimately,
23 essentially, what occurred for most developers.

24 Q. Okay. And then your next bullet is
25 "Extension." 04:48:10

CONFIDENTIAL

1 And you write "Apps given n+x days to 04:48:10
2 comply due to long upgrade cycles e.g. devices
3 (Smart TV, in car, mobile OS's)."

4 Now, is this the -- the category that
5 you've provided testimony about already that 04:48:25
6 explains why extensions were given to certain apps
7 and developers?

8 MR. DAVIS: Objection. Form.

9 THE DEPONENT: The -- this -- this deck
10 was written a long time before the changes were 04:48:38
11 announced, and then a long time before decisions
12 were ultimately made about whether or not someone
13 should be given an extension.

14 So I don't want to connect the two
15 specifically because at this point those -- the 04:48:55
16 exact determination had not been made. So this is
17 proposing a model where some apps might be given
18 additional time.

19 The thing I will also point out here is
20 my recollection is at the time that this deck was 04:49:15
21 written, the proposal was to implement the changes
22 in 90 days. And when changes of this nature are
23 introduced in -- in a 90-day time period, not all
24 developers can react at that speed. It takes many
25 companies often longer than that to write code and 04:49:42

Page 307

CONFIDENTIAL

1 ship it to production or to their users. 04:49:46

2 And so this -- this category is on this
3 deck here, again, in my personal recollection,
4 given the expectation at the time that the changes
5 would be rolled out in a 90-day time period. 04:50:02

6 Q. (By Mr. Loeser) And -- and so just --
7 you know, I asked you on Monday, and a little bit
8 this morning, to explain all the reasons why -- why
9 apps or partners were given access to deprecated
10 permissions. 04:50:20

11 And -- and one of the categories you
12 described was an extension and -- and -- and this
13 bullet is consistent with your earlier testimony.

14 Perhaps the length of time changed, but
15 the notion of providing an extension for those 04:50:33
16 reasons is what you indicated previously; is that
17 right?

18 A. The suggestion on the slide here is -- is
19 broadly consistent with -- ultimately, one of the
20 reasons why several extensions were granted. 04:50:46

21 Q. Okay. Let's -- let's look at the next
22 bullet here on this slide, which says "Exception,
23 Apps to be whitelisted indefinitely due to their
24 strategic value to Facebook e."

25 Do you see that? 04:51:04

Page 308

A. Again, in my personal capacity, my understanding is that the -- the audience of this deck was Dan Rose, who was the director of platform partnerships at the time.

5 Q. And fair to say that when you wrote this 04:52:55
6 bullet, "Exception, Apps to be whitelisted
7 indefinitely due to their strategic value to
8 Facebook e," you had an idea of what that meant to
9 you?

10 A. When I wrote this deck, I recall thinking 04:53:13
11 that there would be a group of apps which would
12 be -- that the company would consider potentially
13 for being granted access to this information over a
14 longer period of time.

15 But, again, at this -- at this time, I 04:53:35
16 didn't have a clear understanding of what those
17 reasons would be, merely that there might be the
18 need for a category into which they could be
19 sorted.

| | | |
|----|--|----------|
| 20 | Q. Let's move forward to what is the eighth | 04:53:53 |
| 21 | slide in the deck that has the heading "Open | |
| 22 | Questions." | |

23 And you'll see the second question is,
24 "Who needs to be on the Review Board to classify
25 apps using to-be-deprecated features? Chris? 04:54:07

CONFIDENTIAL

1 Doug? Vernal? What about mobile apps, companies 04:54:10

2 with sales-led relationships."

3 Do you see that?

4 A. I see that.

5 Q. And how is that question answered? 04:54:20

6 A. I do not recall that question being
7 answered.

8 Q. So does Facebook -- can Facebook tell the
9 Court who it put on the review board -- well, first
10 of all, was there a review -- a review board to 04:54:35
11 classify apps using to-be-deprecated features?

12 A. No. No review board was set up.

13 Q. And -- and I asked you before and I'll
14 ask you again, do you know who made the final
15 decisions on how to classify apps using 04:54:55
16 to-be-deprecated features?

17 MR. DAVIS: Objection. Form.

18 THE DEPONENT: Can you ask me the
19 question again. I think it's important to --

20 MR. LOESER: Sure. Sure. 04:55:10

21 THE DEPONENT: -- to understand.

22 Q. (By Mr. Loeser) Yeah. I see that the
23 question is slightly different than I asked before.
24 So that's a fair clarification.

25 Who made the decision on how to classify 04:55:17

Page 311

CONFIDENTIAL

1 apps using to-be-deprecated features? 04:55:19

2 MR. DAVIS: Object to the form.

3 THE DEPONENT: I don't think any -- I

4 don't think any, in parti- -- single person de- --

5 decided that it was a classification of apps for 04:55:34

6 using to-be-deprecated features.

7 Q. (By Mr. Loeser) And then if you look at

8 the last bullet, it says "If we grant an exception,

9 does that app/partner require a contract with FB?"

10 Do you know how that question was 04:55:52

11 answered?

12 A. I don't know how that question was

13 answered.

14 Q. So let's go to the -- there's an appendix

15 to this -- to this deck, and we can go to the first 04:56:07

16 slide of the appendix.

17 And you see there's two columns,

18 "NewsFeed API."

19 Is -- is that a reference to read stream

20 permission? 04:56:33

21 A. Yes, the first column refers to the --

22 the read stream permission.

23 Q. And the second column is "Non-App-Friends

24 data."

25 And from this, it appears that's a 04:56:43

Page 312

CONFIDENTIAL

1 reference to the permissions -- for the friends 04:56:48
2 permissions?
3 A. That's correct.
4 Q. And if you look there, there's a list of
5 different types of app below on each column; is 04:56:59
6 that right?
7 A. There are some -- there are some apps,
8 yes.
9 Q. And then with regard to each of the
10 categories of app, there's a recommendation as to 04:57:16
11 whether to keep access or remove access to the --
12 in the first column, the "NewsFeed API," and the
13 second column, the "Non-App-Friends data"; is that
14 right?
15 A. Yeah. 04:57:33
16 Q. And who -- who's making that
17 recommendations that's identified there?
18 A. The recommendation is in a -- in a deck
19 that I was involved in producing. But I don't
20 recall if there were other people involved in that 04:57:46
21 recommendation.
22 Q. And if you look at the first header on
23 the newsfeed API, so the read stream, it says -- or
24 I'm sorry -- the first type of app identified,
25 "Strategic mobile & replica apps." 04:58:06

Page 313

CONFIDENTIAL

1 Do you see that? 04:58:09

2 A. I do.

3 Q. And the "Recommendation" is "keep
4 access"?

5 A. I see that. 04:58:14

6 Q. Was that recommendation followed by
7 Facebook?

8 A. The -- the -- the apps listed here, to
9 me, look like mobile device integration partners,
10 which is a program that continued after the 04:58:33
11 announcement of API v2.

12 Q. So it appears that the recommendation was
13 followed?

14 A. Well, what I understand happening is
15 consistent -- ultimately is consistent with our 04:58:49
16 recommendation.

17 Q. And if you look at the last category on
18 the list there for "NewsFeed API," it says "Other
19 Strategic e.g. Bing, Yahoo, Twitter, YouTube,
20 Flipboard," and the "recommendation" is "case by 04:59:02
21 case basis."

22 Was that recommendation followed?

23 A. I don't know the specifics of -- of -- of
24 whether or not that recommendation was followed.

25 It would require me to know on an individual app 04:59:13

Page 314

CONFIDENTIAL

1 basis, which is -- is not something I have prepared 04:59:18
2 to testify on.

3 Q. So do you know if -- well, are Bing,
4 Yahoo!, Twitter, YouTube, Flipboard partners that
5 Facebook identifies as having strategic value to 04:59:30
6 Facebook?

7 MR. DAVIS: Objection. Form.

8 THE DEPONENT: Those apps are -- are
9 listed in that category, but I -- I'm not a
10 determiner of what was considered strategic or not. 04:59:44
11 They are listed here under -- under that framing.

12 Q. (By Mr. Loeser) And Facebook can't
13 testify today as to whether Bing, Yahoo!, Twitter,
14 YouTube or Flipboard were provided access on a
15 case-by-case basis to newsfeed APIs after the new 05:00:02
16 platform was introduced?

17 MR. DAVIS: Objection. Form.

18 THE DEPONENT: On a specific app-by-app
19 basis, I have not revised exactly what happened
20 with each of the apps listed here. 05:00:16

21 Q. (By Mr. Loeser) Let's look at the next
22 column "Non-App-Friends data."

23 At the top it says "Apps recently
24 requesting permissions," and it has the number
25 42,223. 05:00:30

Page 315

CONFIDENTIAL

1 Do you see that? 05:00:32

2 A. Yeah.

3 Q. And then it says "Apps recently accessing
4 the API," and then it says "Unknown due to
5 instrumentation issues." 05:00:40

6 What -- what -- what does that refer to?

7 A. I don't recall exactly what those --
8 what that -- what that means. So hard for me to
9 say today, nine years later.

10 Q. And if you wanted to -- if Facebook 05:00:55
11 wanted to answer that question, where would it go
12 to get the answer?

13 A. Sorry.

14 Today? You're asking me today where
15 would I go to answer the -- 05:01:09

16 Q. Yeah.

17 A. Where would I go to answer the question
18 to -- as in using the API today, or where would I
19 go to answer the question who was using the API in
20 2013? 05:01:19

21 Q. I -- I'm asking where you would go to
22 develop an understanding of what you meant when you
23 said "Unknown due to instrumentation issues."

24 A. I -- as the author of the deck speaking
25 there, I -- the only person that would know likely 05:01:35

Page 316

CONFIDENTIAL

1 is me. And I do not recall what those 05:01:40

2 instrumentation issues were.

3 Q. So for the newsfeed API, you were able to
4 identify the apps recently accessing the API.

5 How did you do that? 05:01:51

6 A. I would have used the HiPal tool.

7 Q. And would you have attempted to do the
8 same thing for identifying apps that recently
9 accessed the non-app-friends data APIs?

10 A. I would have attempted to do the same 05:02:11

11 thing. But I am not a data scientist. And so
12 my -- my skills of data are not the -- of a
13 professional -- of a highly professional standard.
14 I'm competent, but not a professional data
15 scientist. 05:02:30

16 Q. Well -- okay. So if you look at the
17 first category of apps on the "Non-App-Friends
18 data" column, the first one is also "Strategic
19 mobile & replica apps," and the "Recommendation" is
20 "keep access." 05:02:45

21 Is it your -- did Facebook follow that
22 recommendation?

23 MR. DAVIS: Object to the form.

24 THE DEPONENT: I cannot say if Facebook
25 followed the recommendation. That would suggest 05:02:54

Page 317

CONFIDENTIAL

1 that the recommendation was in itself listened to. 05:02:56

2 But as with my previous testimony on the
3 first column, my understanding from this is that
4 HTC Sense and Sony Xperia were classified as device
5 integration partners, which was a separate program 05:03:14
6 that continued after the announcement of API v2.

7 And so my understanding is that is consistent with
8 what ultimately happened.

9 Q. (By Mr. Loeser) And so for that
10 category, "Strategic, mobile and replica apps," 05:03:33
11 those companies continued to have access to friend
12 permissions; is that right?

13 MR. DAVIS: Object to the form.

14 THE DEPONENT: As we've discussed
15 previously, the device integration partners had 05:03:49
16 access to a number of private APIs to allow them to
17 build Facebook replacement clients on third-party
18 devices.

19 Q. (By Mr. Loeser) And those private APIs
20 allowed access to -- to friends data, right? 05:04:05

21 A. Those private APIs allowed the third
22 parties to build experiences that replicate the
23 Facebook experience on those devices, which would
24 have allowed them to include things like the
25 newsfeed, which would have included friends data. 05:04:24

Page 318

CONFIDENTIAL

1 Q. And also they had access to the -- to the 05:04:26
2 friends permissions as well, right?

3 A. The way these -- the way that the
4 Facebook replacement clients were implemented, they
5 had access to the information. But the way that 05:04:40
6 that information was granted was not through the
7 standard Facebook login dialogue.

8 Q. Right. I understand that. But I'm
9 just -- this is in a column for "Non-App-Friends
10 data," and I just wanted to be clear that the 05:04:50
11 "Strategic, mobile & replica apps" continued to
12 have access to "Non-App-Friends data," right?

13 A. The apps listed here, yes, as I
14 understand it, continue to have access to friends
15 data after -- yes, continue to have access to 05:05:04
16 friends data until -- until later.

17 Q. And -- and when you say "later," you mean
18 after the API Graph version 2 was implemented?

19 A. After API version 2 is implemented, yes.

20 Q. Now, one of the categories here is 05:05:23
21 "Lifestyle & Dating," and it says "e.g. Zoosk,
22 Badoo, Birthdays, Groupon," and the
23 "Recommendation" is "special consideration for
24 dating apps (see KP)."

25 Do you see that? 05:05:37

| | | |
|---|----------------|----------|
| 1 | A. I see that. | 05:05:37 |
|---|----------------|----------|

2 Q. And what were the special considerations
3 that Facebook applied for dating apps?

A. Dating apps were seen as a good use case
of the Facebook developer platform. And there was
discussion about how to enable them to continue to
provide a great user experience while minimizing
the amount of information they needed to perform
that function.

05:05:52

| | | |
|----|---|----------|
| 10 | Q. So after the transition to Graph API | 05:06:11 |
| 11 | version 2, or as it referred in this deck, | |
| 12 | platform 3, dating apps continued to have access to | |
| 13 | "Non-App-Friends data"? | |

14 MR. DAVIS: Objection. Form.

15 THE DEPONENT: That's -- dating 05:06:24
16 apps were -- there was a new API built for dating
17 apps that allowed them to continue to build
18 recommendations without having any personally
19 identifiable information available to them.

20 Q. (By Mr. Loeser) And so did those dating 05:06:43
21 apps -- dating apps continue to have access to what
22 is referred to on this slide as "Non-Apps-Friends
23 data?

24 MR. DAVIS: Objection. Form.

| | | |
|----|---|----------|
| 25 | THE DEPONENT: They had access to an API | 05:06:56 |
|----|---|----------|

CONFIDENTIAL

1 that gave them the ability to understand the number 05:06:58
2 of mutual friends that people have in common
3 without any personally identifiable information
4 about those people being emitted.

5 Q. (By Mr. Loeser) And did it provide them 05:07:10
6 with access to "Non-App-Friends data"?

7 MR. DAVIS: Objection. Form.

8 THE DEPONENT: Can you define for me in
9 this context what you mean by "Non-App-Friends
10 data"? 05:07:20

11 Q. (By Mr. Loeser) Well, what did you mean
12 when you wrote that on the top of this slide?

13 A. Well, in this case, I'm referring
14 specifically to a set of permissions and
15 specifically to a set of example methods. 05:07:31

16 Dating apps did not have access -- my
17 understanding is dating apps did not have access --
18 in general, dating apps did not have access to
19 those permissions or those -- and, therefore, able
20 to use those methods to access friend data after 05:07:52
21 the transition.

22 Q. But they did have access to some friends
23 data after the transition?

24 MR. DAVIS: Objection. Form.

25 THE DEPONENT: As I've testified, my 05:08:04

Page 321

CONFIDENTIAL

1 understanding is they had access to a new API that 05:08:05
2 granted them the ability to understand mutual
3 friends in common of two app users without having
4 any personally identifiable information emitted.

5 That's very different in form to the rest 05:08:21
6 of how the friends data and friends permissions
7 worked.

8 Q. (By Mr. Loeser) Let's go to the last
9 bullet on here, "Other Strategic," and it says
10 "e.g. Bing, Yahoo, Twitter, YouTube," and the 05:08:36
11 "Recommendation" is "case by case basis."

12 Is that -- is that how Facebook proceeded
13 with regard to the apps identified on your slide
14 here as "Other Strategic"?

15 A. Again, on -- on a -- on a specific 05:08:57
16 app-by-app basis, I don't -- I don't know here
17 today, in my head, what happened to each of the --
18 the apps listed here.

19 Q. And then if you look at the next slide,
20 there's a whole slide devoted to the topic of 05:09:12
21 "Strategic Partners & Exceptions."

22 Does this help you understand what
23 Facebook means by strategic partners?

24 A. There are certainly some examples here
25 that are -- that seem to be classified as the 05:09:26

Page 322

CONFIDENTIAL

1 strategic partners. 05:09:29

2 But, again, to determine whether or
3 not -- I was not at this time the person
4 determining whether or not these were seen as
5 strategic partners. 05:09:37

6 Q. And -- and Facebook -- having looked at
7 this slide on behalf -- you cannot testify on
8 behalf of Facebook, as its designee, what Facebook
9 means by strategic partners?

10 A. This slide is written by a person in the 05:09:57
11 partnerships team and -- and representative of the
12 partnerships team's opinions, so I think it's
13 consistent with what the partnerships team would
14 have defined as a strategic partner.

15 Q. Okay. Why don't we look at the next 05:10:13
16 slide.

17 Here's another entire slide devoted to
18 identification of strategic partners and
19 exceptions.

20 Do you see that? 05:10:20

21 A. I do.

22 Q. And does that help you, as Facebook's
23 designee, to describe for me what Facebook means by
24 strategic partners?

25 A. Again, this is what I think the strategic 05:10:29

Page 323

CONFIDENTIAL

1 partnerships team were to classify as strategic 05:10:31
2 partners.

3 Q. Okay. Let's look at the next slide.

4 This is another entire slide devoted to
5 the topic of strategic partners and exceptions. 05:10:40

6 Does this help you, as Facebook's
7 designee, to testify as to what Facebook means by
8 strategic partners?

9 A. This helps me identify that these are
10 partners that the platform partnerships team would 05:10:54
11 have designated as strategic partners.

12 Q. And is there some other organization at
13 Facebook that would -- that would also weigh in on
14 how Facebook classifies partners as strategic?

15 MR. DAVIS: Objection. Form. 05:11:13

16 THE DEPONENT: There are several
17 partnerships teams at Facebook working on different
18 types of things. Each of them would maybe have had
19 their own designation of what partners meant and
20 which would -- and -- and how to categorize them. 05:11:30

21 There wasn't just one partnerships team at
22 Facebook.

23 Q. (By Mr. Loeser) And so if you, as
24 Facebook's corporate designee, wanted to develop a
25 complete understanding of what Facebook means by 05:11:39

Page 324

CONFIDENTIAL

1 strategic partners, where are all the places that 05:11:42
2 you would go for that answer?

3 MR. DAVIS: Object to the form.

4 THE DEPONENT: I'm not sure. It would be
5 possible to develop a full understanding -- a full 05:11:53
6 list of different teams of the company that may or
7 may not classify -- that work -- classify partners
8 and may or may not classify them as strategic.

9 MR. LOESER: Okay. We can go to the next
10 exhibit. 05:12:17

11 MR. DAVIS: Mr. Loeser, we've been going
12 about an hour and a half. Would this be an
13 opportune time for a short break?

14 MR. LOESER: Sure. That's fine.
15 Ten minutes. 05:12:23

16 SPECIAL MASTER GARRIE: Wait. Before
17 we -- we do that, Mr. -- Mr. Cross, how long would
18 you like?

19 MR. LOESER: Rebecca --

20 THE DEPONENT: Ten minutes is good for 05:12:35
21 me.

22 SPECIAL MASTER GARRIE: And Rebecca, does
23 ten minutes work for you?

24 THE COURT REPORTER: Yes.

25 SPECIAL MASTER GARRIE: You're very 05:12:39

Page 325

CONFIDENTIAL

1 important to this whole process. Your happiness is 05:12:39
2 critical to the entire transaction.

3 MS. DAVIS: Off the record.

4 (Discussion off the stenographic record.)

5 THE VIDEOGRAPHER: Okay. We're off the 05:13:00
6 record. It's 5:13 p.m.

7 (Recess taken.)

8 THE VIDEOGRAPHER: We're back on the
9 record. It's 5:36 p.m.

10 Q. (By Mr. Loeser) Mr. Cross, previously, 05:36:19
11 when I was asking you about who made the decision
12 about how to decide which partners would continue
13 to have access to friend data, you mentioned the --
14 the platform leadership team, in addition to the
15 platform partnership group; is that right? 05:36:36

16 A. The platform leadership team -- the
17 platform product leadership team would have been
18 involved in those conversations.

19 Q. And who at the platform -- I'm sorry.

20 What is the full name of that group, the 05:36:53
21 platform -- platform leadership...

22 A. So just the Facebook platform team, that
23 would have been the name of it. And then the kind
24 of -- the leadership team would have been -- the --
25 the senior product and engineering people as part 05:37:08

Page 326

CONFIDENTIAL

1 of that group. 05:37:11

2 Q. And who were those people?

3 A. Some names that come to mind, I can't --

4 well, I -- can't be specific as to time. But some

5 names that come to mind around the time of this 05:37:29

6 period, 2013 to 2015, Mike Vernal, Doug Purdy,

7 Ilya Sukhar and Vladimir Fedorov.

8 MR. LOESER: Okay. Thank you.

9 If we can put up what's previously been

10 marked as Exhibit 20. 05:37:49

11 Q. (By Mr. Loeser) And Mr. Cross, you

12 should be looking at Exhibit 20, which is an email

13 from you to a number of people.

14 First in the list is Quinn Duffy and also

15 Namita Gupta and Amir Naor and KP, among others, 05:38:37

16 with a cc to Eddie O'Neil.

17 The subject is "Capabilities Tool,

18 improvement requests - feedback by EOD Sunday,

19 please" with the attachment "Capability Audit

20 24 Oct 2013.xlsx." 05:38:51

21 Do you see that?

22 A. I do.

23 Q. And the date of your email is

24 October 24th, 2013; is that correct?

25 A. That's correct. 05:39:02

Page 327

CONFIDENTIAL

1 Q. And I'll read -- the first paragraph of 05:39:02
2 your email states "Over the last few weeks, you'll
3 have noticed Engineering have moved many app-based
4 GKs over to the new Capabilities tool."

5 What are app-based GKs? 05:39:15

6 A. So as we previously talked about, GK
7 refers to gatekeeper, which is a tool inside
8 Facebook. And app-based GK is a gatekeeper that
9 takes an app ID as an input rather than a user ID,
10 for example. 05:39:34

11 Q. And you write "Going" -- thank you.

12 "Going forward, this tool is going to be
13 a much" part much -- I'm sorry -- "to be a much
14 larger part of our lives - its where the vast
15 majority of whitelists will be managed." 05:39:45

16 Is that, in fact, what -- what happened,
17 is that -- and I think you testified about this on
18 Monday -- the capabilities tool became the place
19 where the vast majority of whitelists were managed,
20 right? 05:40:00

21 A. Our intention at the time was to make the
22 capability tool the -- the way the -- what platform
23 application whitelists were managed. That was
24 the -- that -- that was the plan for the
25 capabilities tool over time. 05:40:14

Page 328

CONFIDENTIAL

1 Q. Okay. And then you next write "Platform 05:40:15
2 Simplification is about to introduce even more
3 whitelists - such as allowing apps to be exempt
4 from the transition to hashed UUIDs, or be able to
5 continue using read_stream or friends_*perms." 05:40:28

6 Did I read that correctly?

7 A. You did read that correctly.

8 Q. And is platform simplification there a
9 team or an event?

10 A. Neither. Platform simplification refers 05:40:41
11 to the program of work, I guess you would call it,
12 that ultimately came to be the changes we launched
13 on April 30th, 2014, otherwise as known as
14 platform 3.0.

15 Q. Okay. And did platform simpli- -- 05:41:02
16 simplification, in fact, introduce even more
17 whitelists?

18 A. It introduced -- as a result, there were
19 a small number of additional whitelists added, but
20 not a large number. 05:41:18

21 My recollection at the time, in my
22 personal capacity here, is that the expectation was
23 that there would be -- the expectation I had is
24 that we might need a -- a number of new whitelists.

25 In actual fact, a very small number were 05:41:40

Page 329

CONFIDENTIAL

1 ultimately needed due to the decisions taken as to 05:41:43
2 how the changes would be rolled out.

3 Q. And how many whitelists were introduced
4 to continue -- to enable apps to continue using
5 read stream or friends permission? 05:41:56

6 A. I couldn't tell you today exactly how
7 many new capabilities were added to the capability
8 tool.

9 Q. And where would Facebook go to get an
10 answer to that question? 05:42:09

11 A. I would go and ask the platform
12 engineering team to see if they could determine
13 which capabilities were added and when.

14 Q. And that's not something that you did to
15 prepare for your testimony today? 05:42:26

16 A. I talked to the platform engineering team
17 about a number of issues, but not the specific
18 question of exactly how many new capabilities were
19 added back in 2013, '14.

20 MR. LOESER: And I'm going to ask really 05:42:44
21 you, but through your counsel, since we'll be back
22 on Monday, if that's a question that you could
23 obtain an answer for, since it's clearly under the
24 heading of the whitelisting topic that is indicated
25 in your notice. 05:42:59

Page 330

CONFIDENTIAL

1 MR. BLUME: Noted. And we can discuss it 05:43:02
2 offline.

3 MR. LOESER: So let's go to the next
4 exhibit, which is previously been marked
5 Exhibit 13. 05:43:12

6 Q. (By Mr. Loeser) And Mr. Cross, we are
7 showing you what's previously been marked
8 Exhibit 13, which is an email from you to
9 Jackie Chang, Ime Archibong, KP, Bryan Hurren and
10 Monica Mosseri. 05:43:56

11 Do you see that?

12 A. I do.

13 Q. And the date of the email is
14 December 10th, 2013. And the subject is "Re:
15 Simon's Updates - 6th Dec." 05:44:02

16 Do you see that?

17 A. I do.

18 Q. Who is Bryan Hurren?

19 A. Bryan Hurren was, if I recall correctly,
20 a strategic partner manager on the platform 05:44:16
21 partnerships team.

22 Q. So there's a group at Facebook that is
23 referred to as the strategic partner group?

24 A. The job title I recall having -- that
25 these folks had at the time -- including I had at 05:44:31

Page 331

CONFIDENTIAL

1 the time -- was strategic partner manager and -- 05:44:35
2 and the platform partnerships team was the team you
3 were part of.

4 Q. And I'm sorry, did you say that you were
5 part of the strategic -- strategic partner group as 05:44:44
6 well?

7 A. At this time I was a partner manager on
8 the platform partnerships team, yes.

9 Q. The strategic partnership team?

10 A. The name of the team was the -- I -- I 05:44:58
11 recall the name of the team being the platform
12 partnerships team.

13 Q. Okay. And is that the same team that
14 Bryan Hurren was on?

15 A. Yes. 05:45:11

16 Q. Who is Monica Mosseri?

17 A. She was another partner manager on the
18 team.

19 Q. So now this -- the subject of this email
20 is indicated "Simon's Updates." 05:45:28

21 Were -- were you creating regular updates
22 regarding platform simplification?

23 A. I -- I was involved in updating my team
24 about the things I was working on, and platform
25 simplification was one of the things I was working 05:45:50

Page 332

CONFIDENTIAL

1 on at the time. 05:45:55

2 Q. Okay. So let's go to the -- the third
3 page of this email string. The Bates on this page
4 is FB-CA-MDL-00200698. And the heading I'm looking
5 at is "Platform Simplification." 05:46:09

6 And if you look under that heading, can
7 you read the third bullet in that -- under that
8 heading?

9 A. "Key focus this week is to pull
10 additional data on apps and capabilities to allow 05:46:29
11 the 4 partnerships teams" to -- "(Games, Non-games,
12 Mobile, Marketers) to pre-approve apps for the new
13 whitelists, and review their apps with existing
14 whitelists."

15 Q. Okay. And so based upon this update, it 05:46:43
16 is -- it is true, is it not, that Facebook was
17 identifying particular apps so that it could
18 preapprove them to -- to continue having access to
19 friend data, right?

20 A. Well, first of all, the -- it doesn't -- 05:47:04
21 the new whitelist doesn't necessarily mean friend
22 data, right. You need to be specific about that.
23 Whitelist and friends data are not synonyms.

24 The -- what's on the slide deck here is,
25 again, in a personal capacity, me talking about an 05:47:21

Page 333

CONFIDENTIAL

1 initiative that was proposed to be done in the 05:47:27
2 coming week.

3 Q. Okay. And -- and thank you for
4 clarification on -- on friends data. The project
5 was broader than that. 05:47:37

6 This was looking at the -- the -- the
7 permissions that would be deprecated more broadly
8 in the platform simplifications process, right?

9 A. The platform simplification at this time,
10 which again is several months before it happened, 05:47:55
11 and a lot changed between then and the
12 announcement.

13 What I'm referring to here is -- is the
14 broader package of work, which included a large
15 number of other changes to the API as well. 05:48:08

16 Q. Okay. And so, nonetheless, Facebook was
17 endeavoring to preapprove certain apps for the new
18 whitelist that would be implemented in connection
19 with the introduction of platform 3, right?

20 A. I don't think it's fair to say Facebook 05:48:26
21 was. I, as a partner manager, was proposing that
22 we do a piece of work like this, although I do not
23 recall us doing so.

24 Q. And if Facebook wanted to be able to
25 testify as to whether there was work done to 05:48:48

Page 334

CONFIDENTIAL

1 preapprove apps for the new whitelist, how would 05:48:50

2 Facebook go about getting that information?

3 MR. BLUME: Objection. Form.

4 THE DEPONENT: I would try and see if any

5 documents existed from the time that would pertain 05:49:09

6 to such an effort. I -- again, like -- I don't

7 think the -- what -- what you're seeing in this

8 email and the previous slide deck is a bunch of

9 people trying to figure this out, very differently

10 from what ultimately happened and transpiring. 05:49:33

11 So to answer your question, where would I

12 go. I would go and speak to the -- the other

13 people on this thread, if they still exist, and see

14 if they recall any documents that were produced

15 around this time that might pertain to this bullet. 05:49:50

16 I do not recall --

17 Q. (By Mr. Loeser) And you haven't --

18 A. Sorry. Go on.

19 Q. No, go ahead. I'm sorry.

20 A. I -- I do not recall pre-approving or 05:50:01

21 being involved in pre-approving apps for -- for the

22 new whitelists at this time.

23 Q. And you did not go talk to any of the

24 persons on this thread in order to identify whether

25 any apps were pre-approved for the new whitelists? 05:50:23

Page 335

CONFIDENTIAL

1 might want to ask her. 05:51:49

2 Q. And that would be the natural way to find
3 out what Jackie did, right?

4 A. That would be a reasonable thing to do.

5 Q. And -- and is that what Facebook would 05:52:01
6 do, if Facebook wanted to answer the question
7 whether Jackie led on putting together a new
8 whitelist process with legal and product?

9 MR. BLUME: Objection. Form.

10 THE DEPONENT: To that very specific 05:52:14
11 question, it might -- if Jackie was -- if I -- if
12 Jackie was available, then speaking to her about
13 that might -- might be a way to get clarity. But
14 it's not certain, given it would be relying on her
15 recommendation -- her recollection. 05:52:32

16 Q. (By Mr. Loeser) Let's go to the next --
17 go up the string to the email from you dated
18 November 25th, 2013. "Subject: Re: Simon's
19 Updates - 22nd Nov."

20 So this is another update you provided 05:52:53
21 about the work that you were doing at the time,
22 right?

23 A. Yes.

24 Q. Okay. And if you go down to the portion
25 of that -- it's on the next page of your update -- 05:53:08

Page 337

```
1 |     there's, again, a heading "Platform"                                05:53:12
```

| | |
|---|------------------|
| 3 | Do you see that? |
|---|------------------|

5 Q. And I'll read the second bullet. 05:53:23

7 Jackie working closely with Marie and Legal to
8 design a fast but safe process for whitelisting
9 apps. Spec for updates to tools in progress and
10 moving forward build-stage. Audit of existing 05:53:36

| | |
|----|------------------|
| 12 | Do you see that? |
|----|------------------|

14 Q. So your earlier email we went through was

15 on October 28th -- I'm sorry -- went through the 05:53:46

17 "Jackie is leading on putting together a new
18 whitelist process for Legal and Product," right?

20 Q. All right. And this email, a little bit 05:53:57
21 later in time, you provide an update on what Jackie
22 was doing, right?

24 Thank you for scrolling up.

CONFIDENTIAL

1 and legal to design a fast but safe process for 05:54:14
2 whitelisting apps?

3 A. I honestly don't recall what Jackie did.
4 And I think, again, the best -- the best way to
5 understand -- understand that would be to ask her. 05:54:27

6 I do not recall what -- what she did or
7 what the outcome was. And I don't recall anything
8 that -- outputting from this being ultimately used
9 a year and a half later.

10 Q. Okay. So what was the safe -- the safe 05:54:48
11 process -- the -- the fast but safe process for
12 whitelisting apps that was developed at Facebook?

13 MR. BLUME: Objection. Scope. Form.

14 THE DEPONENT: Yeah. I'm not sure I can
15 answer that in -- in Facebook's capacity. I'm not 05:55:05
16 sure there was a -- a single process for
17 whitelisting apps.

18 I can talk in a personal capacity about
19 my involvement at the time, which was to improve
20 the capability tool as to how whitelists were 05:55:27
21 requested and granted.

22 Q. (By Mr. Loeser) And other than what
23 you've previously -- previously testified to, is
24 there a -- was there a process for whitelisting
25 apps that -- that was adopted by Facebook? 05:55:57

CONFIDENTIAL

1 MR. BLUME: Objection. Scope and form. 05:56:01

2 THE DEPONENT: There was a -- a technical
3 process for whitelisting apps which allowed --
4 which enabled a -- which was implemented through
5 the capabilities tool. 05:56:16

6 Q. (By Mr. Loeser) And was there a formal
7 document or protocol to be used when deciding what
8 apps to whitelist?

9 A. I do not recall a -- a formal document or
10 protocol. And it did -- deciding -- well, let 05:56:32
11 me -- let me wind back.

12 Deciding to whitelist for what?

13 Q. For permissions that were going to be
14 deprecated with the transition to platform 3.

15 A. So the -- the -- so specifically, 05:56:56
16 extensions to the Graph API -- API v1 deprecation?

17 Q. Yes.

18 A. The -- and so what was your original
19 question?

20 I'm sorry. I want to make sure I answer 05:57:15
21 it.

22 Q. Sure.

23 Was there a formal document or protocol
24 to be used when deciding what apps to whitelist?

25 A. I don't recall there being a formal 05:57:28

Page 340

CONFIDENTIAL

1 document or protocol. 05:57:29

2 Q. And if Facebook were to answer that
3 question, where would Facebook go to identify an
4 answer?

5 MR. BLUME: Objection. Form. 05:57:45

6 THE DEPONENT: I would attempt to speak
7 to -- to Jackie potentially and -- and maybe Eddie
8 as if to -- their recollection as -- as to how this
9 process was -- was managed.

10 Q. (By Mr. Loeser) And -- and you did not 05:58:02
11 do that to testify -- to prepare yourself to
12 testify today, is that right, about this particular
13 topic?

14 A. I talked to Eddie, Ime and a few other
15 people to ask on their recollection of -- of -- of 05:58:17
16 how -- specifically why we decided -- why
17 partners -- their recollection as to why certain
18 entities were granted extensions, and I reviewed
19 some internal documents on the topic.

20 Q. But you didn't ask them if there was a 05:58:42
21 formal document or protocol to be used when making
22 whitelisting decisions?

23 A. I did not ask them that specific
24 question.

25 MR. LOESER: And similar to what I said 05:58:51

Page 341

CONFIDENTIAL

1 before, and via your counsel, if that's a question 05:58:53
2 you could be prepared to answer when we come back
3 on Monday, that would be useful for this process.

4 MR. BLUME: Noted.

5 Q. (By Mr. Loeser) Okay. So let's look at 05:59:09
6 the -- let's look at the next bullet on your update
7 here.

8 It says "New whitelists for public
9 deprecations - close to finalizing with Product
10 (Eddie and Harshdeep) a set of 54 new Capabilities 05:59:15
11 we need to add to allow us to whitelist partners
12 past the public deprecations. Next step is to map
13 apps against these and start making
14 no/extension/exemption decisions."

15 Do you see that? 05:59:32

16 A. I do see that.

17 Q. And so these 54 new capabilities were
18 necessary to allow Facebook to whitelist partners
19 past the public deprecations; is that right?

20 A. I -- the -- the email references 54 new 05:59:47
21 capabilities. I do not recall, again, personal
22 veracity, that those were created.

23 Q. And so in order to allow Facebook to
24 whitelist partners past the public deprecations,
25 Facebook obviously had to do some advance work 06:00:14

CONFIDENTIAL

1 before the new platform was introduced; is that 06:00:18

2 right?

3 A. There was work done to ensure that as the
4 platform announcements were made, that we had tools
5 to control the rollout. 06:00:35

6 Q. And it took some time to develop the
7 tools that would enable certain apps and partners
8 to have access to the publicly deprecated
9 permissions after the rollout of the new platform;
10 is that right? 06:00:51

11 A. It would have taken an engineer some time
12 to write some code, yes.

13 Q. And then you write, "Next step is to map
14 apps against these and start making
15 no/extension/exemption decisions." 06:01:03

16 And those were decisions that needed to
17 be made in advance of the rollout of the platform
18 as well; is that right?

19 A. No.

20 Q. Okay. Did Facebook make decisions about 06:01:15
21 no extension and -- no/extension/exemption
22 decisions in advance of the rollout of
23 platform 3.0?

24 A. I do not recall extension, exemptions
25 decisions being made before the rollout of the 06:01:36

Page 343

CONFIDENTIAL

1 platform. It's possible that there was some 06:01:39
2 opinions about what would be done. But remember,
3 the rollout took a year and the discussions about
4 extensions were towards the end of that period.

5 Q. And what about exemptions, when did those 06:02:04
6 discussions start?

7 A. The -- you're talking there really about
8 the integration partners, which was considered
9 separate from this process.

10 Q. And so Facebook interprets exemption to 06:02:23
11 refer solely and specifically to integration
12 partners?

13 MR. BLUME: Objection.

14 THE DEPONENT: In this case -- sorry. Go
15 on, Rob. 06:02:35

16 MR. BLUME: Objection. Form.

17 THE DEPONENT: At this time, again
18 speaking in a personal capacity, it was -- I -- it
19 was considered by me that there was potentially
20 some apps that would be given nondevice integration 06:02:49
21 partners -- nonintegration partners that might be
22 considered with exemptions.

23 But ultimately, I do not recall that
24 happening. The integration partners set is -- is a
25 separate process. This is referring to the public 06:03:12

Page 344

CONFIDENTIAL

1 platform. 06:03:16

2 Q. (By Mr. Loeser) And so did Facebook give
3 integration partners extensions or exceptions?

4 A. Inte- -- integration partners had access
5 to private APIs and permissions on top of what the 06:03:27
6 standard API offered regular developers. And that
7 was considered access to continue, separate to the
8 API changes that were being made for the public
9 developer platform.

10 Q. And -- and other than integration 06:03:54
11 partners, were there partners that -- that fell
12 into that -- that category?

13 A. My understanding is that the -- the
14 integration partners, the -- the apps that were
15 intended to have longer term access to this 06:04:13
16 information.

17 Q. Okay. And -- and Facebook's testimony is
18 that there were not other types of partners that
19 had longer term access to the publicly deprecated
20 permission? 06:04:28

21 MR. BLUME: Object to form.

22 THE DEPONENT: My understanding is that
23 outside of the integration partners only --
24 ultimately, only temporary extensions were -- were
25 granted. 06:04:43

Page 345

CONFIDENTIAL

1 Q. (By Mr. Loeser) And integration partners 06:04:44
2 weren't the only type of partners with private
3 APIs, were they?

4 MR. BLUME: Objection. Scope and form.

5 THE DEPONENT: Yeah. I'm -- I'm not 06:04:55
6 sure -- I'm not -- not sure what you mean.

7 Sorry. Can you ask a more precise
8 question.

9 Q. (By Mr. Loeser) Well, you said -- you
10 testified integration partners had access to 06:05:01
11 private APIs and permissions.

12 And what did you mean by that?

13 A. So many of the -- many of the -- there
14 were a number of developers that had integrations
15 with the Facebook developer platform that were 06:05:37
16 nonstandard, not things that public developers
17 could build. To enable those integrations, they
18 would have had some additional capabilities. And
19 that -- those developers and those integrations
20 were seen as separate to the deprecations of API v1 06:06:00
21 and v2, and rollout to v2.

22 Q. Yeah. I just want to make sure the
23 record is clear.

24 You said that integration partners had
25 that -- went through that process. And I'm asking 06:06:15

Page 346

CONFIDENTIAL

1 you are there other types of partners that had 06:06:18
2 access to -- to private APIs that enabled something
3 similar for them?

4 A. My understanding that integration
5 partners refers to any partner at the limit who had 06:06:30
6 some kind of private API access.

7 Q. If we go to page 3 of this string, back
8 to your November 8th update -- I'm sorry. We're
9 going to go to page 5 of the string. And we're
10 moving back to an October 11th, 2013, update on 06:06:57
11 "Platform Simplification."

12 There's a bullet here, "Dev Chakravarti
13 joined the team as a data analyst - helped him ramp
14 up on how to analyze the effects of PS12n on the
15 whole ecosystem." 06:07:14

16 Explain who he is and what you asked him
17 to do.

18 A. I do not recall Dev Chakravarti, and I do
19 not recall what I asked him to do.

20 Q. I gather Facebook evaluated the effects 06:07:34
21 of PS12 and on the whole ecosystem.

22 And for the record, PS12n is another way
23 of describing the transition to Graph API
24 version 2, right?

25 A. PS12n refers to platform simplification, 06:07:47

CONFIDENTIAL

1 which refers to the package of work that ultimately 06:07:49
2 resulted in what was announced on April 30th, 2014,
3 yes.

4 Q. Okay. So Facebook evaluated the effects
5 of PS12n on the whole ecosystem? 06:08:01

6 MR. BLUME: Objection. Beyond the scope.
7 And form.

8 THE DEPONENT: I can't confirm what did
9 or did not happen. There's an email that says that
10 I helped this person ramp up. But it doesn't 06:08:16
11 confirm if any analysis or -- was done or what was
12 found.

13 Q. (By Mr. Loeser) So if Facebook wanted to
14 answer the question, "Did you analyze the effects
15 of PS12n on the whole ecosystem," what would 06:08:29
16 Facebook do to find an answer to that question?

17 MR. BLUME: Objection. Scope. Form.

18 THE DEPONENT: I would attempt to see if
19 Dev Chakravarti was still at the company. And I
20 would look for documents around this time that were 06:08:46
21 analysis or -- or pertained to be analysis of the
22 potential impacts of PS12n.

23 But you asked me a specific question as
24 to whether or not he did an analysis, and I cannot
25 confirm if he did any analysis. 06:09:06

Page 348

CONFIDENTIAL

1 Q. (By Mr. Loeser) Okay. Going -- going 06:09:08
2 back to your answer right before that statement, to
3 prepare for your testimony today, did you ask
4 anyone whether Facebook analyzed the effects of
5 PS12 on the whole ecosystem? 06:09:21

6 A. I asked people as to if they recall
7 impact sizing being done. I didn't -- this --
8 your -- your specific question about the whole
9 ecosystem is a very specific one.

10 I spoke to people about their 06:09:38
11 recollections as to what analysis was done in
12 advance of the changes. And I reviewed several
13 documents that could be construed as impact
14 analysis.

15 MR. LOESER: Okay. Thank you. 06:09:53

16 And -- and I saw that in your notes and
17 we'll come -- we'll get to that in -- in a little
18 bit.

19 So thank you for that answer.

20 Let's go to the next exhibit which is a 06:10:01
21 new exhibit, which you'll see in a moment.

22 It's marked -- we're going to mark it
23 with a new number, 338.

24

25 ///// 06:10:29

Page 349

CONFIDENTIAL

1 (Exhibit 338 was marked for 06:10:29
2 identification by the court reporter and is
3 attached hereto.)

4 Q. (By Mr. Loeser) And momentarily,
5 Mr. Cross, you'll see an email from KP to 06:10:40
6 Monica Mosseri, dated 12/10/2013. "Subject:
7 Re: PS12n Criteria Review," with an attachment
8 "Criteria for whitelist MWv1_kp edits.pptx."

9 You let me know when you can see that.

10 A. Yeah, I see it. 06:11:10

11 Q. And you'll see that KP starts his email,
12 "Hello Monica, This is awesome! Great framework."

13 Do you see that?

14 A. I do see that.

15 Q. And then he -- based on this, it appears 06:11:24
16 that he reviewed slides that she prepared and
17 provided some edits and comments; is that right?

18 A. That's a reasonable interpretation of
19 what KP said.

20 Q. And if we move down this email string, 06:11:36
21 you'll see at the beginning there's an email from
22 Monica Mosseri to KP, dated December 10th, 2013,
23 with the "Subject: PS12n Criteria Review."

24 Do you see that?

25 A. I do see that. 06:11:53

Page 350

CONFIDENTIAL

1 Q. She writes, "Hey KP, I am in the final 06:11:54
2 stages of the Whitelist Criteria Review (1a in
3 Simon's graphic) and need your help. I can set up
4 time over VC if that is easier let me know."

5 Did I read that correctly? 06:12:09

6 A. You read that correctly.

7 Q. So based on this, Monica Mosseri was
8 involved in a whitelist criteria review as part of
9 the introduction of PS12n or platform 3; is that
10 right? 06:12:25

11 MR. BLUME: Objection. Form.

12 THE DEPONENT: It says what she was
13 involved in here. I don't want to answer on behalf
14 of the company. We should just read what she has.

15 Q. (By Mr. Loeser) Okay. And so Facebook 06:12:37
16 did a whitelist criteria review as part of the
17 introduction of platform 3.0?

18 A. I don't think it's appropriate to say
19 Facebook did. Monica seems to have done a piece of
20 work of that nature. But I don't recall what it 06:12:56
21 is.

22 Q. And she worked for Facebook at the time,
23 right?

24 A. She worked for Facebook at the time.

25 Q. So you've said a lot that -- something 06:13:09

Page 351

CONFIDENTIAL

1 along the lines of "I'm not sure that Facebook did 06:13:12
2 this. But this is what this person did."

3 Are you -- are you saying to me that when
4 a Facebook employee engages in a project in
5 connection with her work, that that's not something 06:13:21
6 that Facebook did?

7 A. Perhaps I'm --

8 MR. BLUME: Objection to form.

9 THE DEPONENT: Perhaps I'm just
10 misrepresenting how that question should be 06:13:35
11 answered. My apologies.

12 Q. (By Mr. Loeser) Okay. And -- and I'm
13 not -- I'm not trying to make you uncomfortable.
14 I'm just -- I want to be clear that we're talking
15 about a Facebook employee doing work for Facebook. 06:13:48

16 And you're not saying something other
17 than that, right?

18 A. No, this is a Facebook employee --
19 sorry, Rob. You were going to say something?

20 MR. BLUME: I was going to say, 06:13:57
21 objection, to the extent it calls for a legal
22 conclusion.

23 THE DEPONENT: Okay. Yeah, I -- I -- I
24 can say that Monica was a Facebook employee and
25 it -- it appears by this email that she's -- 06:14:07

Page 352

CONFIDENTIAL

1 she's -- she's doing some work, and it would be 06:14:10
2 reasonable to say it's in con- -- coherent with her
3 duties.

4 Q. (By Mr. Loeser) And if you look at No. 1
5 in her email, she writes, "Finalizing app 06:14:26
6 categories and conversional apps to flag: in
7 slide 7, I have gone ahead and highlighted the
8 categories of apps that are controversial.
9 Controversial meaning there would be significant
10 impact to us if they were" shut -- "if they were to 06:14:38
11 shut down their integration in response to PS12n.
12 Also controversial because they are trending and
13 there is a strategic relationship with Zuck/mteam."

14 Did I -- did I read that accurately?

15 A. I think you read that accurately. 06:14:59

16 Q. So based upon this, it appears that a
17 whitelist criteria review was done to determine
18 which apps should be whitelisted, right?

19 A. No, that doesn't -- that's not a
20 conclusion you can directly draw from this. 06:15:16

21 She's saying she's in the final stages of
22 a whitelist criteria review. I don't know what --
23 I don't recall what she meant by that. And it
24 doesn't mean that necessarily apps were categorized
25 against that criteria. I just don't know what this 06:15:35

Page 353

CONFIDENTIAL

1 work was, sitting here today. 06:15:40

2 Q. So fair to say that a whitelist criteria
3 review was a review of whitelist criteria?

4 MR. BLUME: Objection. Form.

5 THE DEPONENT: She's -- it's hard to know 06:15:54

6 what she means. She's in the final state -- she
7 says here she's in the final stages of something.

8 But I -- again, I don't know what that means.

9 There was some process underway, but I'm -- I'm not
10 aware, sitting here today, of what that was. 06:16:12

11 Q. (By Mr. Loeser) And -- and Mr. Cross,
12 what relationship does the whitelist criteria
13 review have to the work that KP referred as
14 Jackie Chang's format for partnership positions?

15 MR. BLUME: Objection. Form. Scope. 06:16:33

16 THE DEPONENT: Sorry. Can you frame that
17 a bit again? I'm not sure I make the connection
18 you're making.

19 Q. (By Mr. Loeser) Sure.

20 We went through some email that discussed 06:16:44

21 Jackie Chang's recommendations regarding a format
22 for how to treat different types of partners in the
23 transition to the new platform. KP referred to
24 that as Jackie's format.

25 And I'm asking you what the relationship 06:17:02

CONFIDENTIAL

1 is between that and this whitelist criteria review 06:17:05
2 that is referenced here?

3 A. I don't know the relationship between
4 those two things.

5 Q. So in this -- in her final stages of the 06:17:15
6 whitelist criteria review, Ms. Mosseri indicates
7 that she's gone ahead and highlighted the
8 categories of apps that are controversial. And
9 then she defines controversial here, "meaning there
10 would be significant impact to us if they were shut 06:17:34
11 down."

12 What is -- how -- how does Facebook
13 define significant impact resulting from if
14 partners or apps are shut down in response to the
15 transition to PS12n? 06:17:50

16 MR. BLUME: Objection. Scope. And form.

17 THE DEPONENT: There's no standard
18 definition at the company of what "significant
19 impact" would mean.

20 Significant is subjective. And impact 06:18:01
21 could mean many different things in many different
22 contexts.

23 Oh, I can say in a -- in a personal
24 capacity here, having been involved to some degree,
25 is the types of things that would be considered 06:18:18

Page 355

CONFIDENTIAL

1 here might be reputational concerns and platform -- 06:18:22
2 like user significant -- user -- user experience
3 concerns by developers removing integrations that
4 users found valuable.

5 Q. (By Mr. Loeser) And any other -- 06:18:43
6 anything else that Facebook would consider a
7 significant impact to Facebook if particular apps
8 were shut down as a result of the introduction of
9 platform 3.0?

10 MR. BLUME: Objection. Scope. And form. 06:19:05

11 THE DEPONENT: Again, I don't feel I can
12 answer on Facebook's behalf. There's no standard
13 definition for significant. And there's no
14 significant -- there's no standard definition
15 for -- for impact. So I -- I -- I don't feel I can 06:19:17
16 define that on Facebook's behalf.

17 Q. (By Mr. Loeser) Okay. But nonetheless,
18 you gave one example, which was reputational
19 concern.

20 That could be a significant impact for 06:19:29
21 Facebook?

22 A. In my personal capacity, having worked on
23 this stuff, that might be considered impact because
24 of these changes.

25 I gave a second example as well, which is 06:19:41

CONFIDENTIAL

1 user experience changes as a result of the changes 06:19:46
2 and how the API worked and the experiences that
3 developers would be able to build.

4 Q. And then Ms. Mosseri also writes, "Also,
5 controversial because they are trending and there 06:20:01
6 is a strategic relationship with Zuck/mteam."

7 What -- what apps had a strategic
8 relationship with -- and I suppose that's
9 Mark Zuckerberg; is that a fair way to read that?

10 A. I think "Zuck" in this context would 06:20:14
11 refer to -- to Mark Zuckerberg.

12 Q. And what does the M Team refer to?

13 A. M Team refers to Mark's leadership team.

14 Q. And do you know who's on that team -- who
15 was on at this time? 06:20:27

16 A. I know some of the people that are on it
17 at this time. But the -- the people on that team
18 has changed over -- over the years, as you may
19 expect.

20 Q. Okay. Who were some of the people that 06:20:37
21 were on at this time?

22 A. On it at this time?

23 Q. Yeah.

24 A. Sorry.

25 I know who's on it -- I know some of the 06:20:44

CONFIDENTIAL

1 people on it today. But I'm not sure who would 06:20:47
2 have been on it at this time.

3 Q. Was -- was Sheryl Sandberg on the M Team
4 at this time?

5 A. I cannot confirm. I do not -- I do not 06:21:02
6 know whether or not Sheryl was on the M Team at
7 this time.

8 Again, in a personal capacity, I think
9 it's likely she was. But I could not say
10 100 percent for certain that that's the case. 06:21:12

11 Q. And what does it mean to Facebook for
12 apps that have a "strategic relationship with
13 Zuck/mteam"?

14 MR. BLUME: Objection. Form. Scope.

15 THE DEPONENT: I don't know what it means 06:21:28
16 specifically to have a strategic relationship
17 with -- with Zuck and M Team.

18 There's no company definition for -- for
19 what that would mean. So I -- I cannot -- I don't
20 feel I can accurately answer that question on 06:21:43
21 behalf of the company.

22 Q. (By Mr. Loeser) And if you move down
23 Ms. Mosseri's email a little bit under No. 2, it
24 says "Loss/Decision Assessment: in slide 7 and 8,
25 we need to access the loss for the top partners and 06:21:58

Page 358

CONFIDENTIAL

1 determine whether we will grant them an exemption 06:22:00
2 or extension."

3 So what does Facebook mean by top
4 partners?

5 MR. BLUME: Objection. Scope. Form. 06:22:12

6 THE DEPONENT: I don't know what Face- --
7 I don't know what Monica means by -- by top
8 partners. That could mean a whole bunch of
9 different things, depending on the context.

10 Q. (By Mr. Loeser) And the reference to 06:22:25
11 exemptions or extensions, that -- that is with
12 regard to the -- to changes that would occur with
13 the introduction of platform 3.0?

14 A. Given the timeline of the -- of the
15 email, I think it's reasonable to -- to -- to 06:22:39
16 conclude that's what she meant.

17 But, again, as I've said multiple times
18 here, I think the -- the frame of mind of the team
19 in 2013, when the nature of the changes was still
20 in flux and the expected exact -- exact -- exact 06:23:04
21 set of changes and the way in they were rolled out
22 drastically differed from what ultimately ended up
23 happening.

24 So you're seeing a bunch of people here
25 as -- as I mentioned before, attempting to -- to 06:23:22

Page 359

CONFIDENTIAL

1 prepare for -- for something where the actuality 06:23:25
2 was quite different.

3 Q. Okay. And so on that same No. 2,
4 Ms. Mosseri writes -- and this is to KP -- "Can you
5 help me assess the losses (rev and data)" -- "rev" 06:23:42
6 refers to revenue there; is that right?

7 MR. BLUME: Objection. Form. Scope.

8 THE DEPONENT: I can't confirm what
9 revenue means in this context.

10 Q. (By Mr. Loeser) Okay. Well, let's just 06:23:57
11 read it into the record.

12 "Can you help me assess the losses (rev
13 and data) and whether we will make an
14 exemption/extension for the following apps?"

15 And then the following apps it appears 06:24:09
16 are LinkedIn and Path, is what's shown on here; is
17 that -- did I read that correctly?

18 A. The formatting is a little messed up. So
19 it's not 100 percent clear that that's -- that --
20 that's what naturally follows. But it's not 06:24:24
21 unreasonable to -- to think that's the case.

22 Q. Okay. And so it looks like Ms. Mosseri
23 was asking KP if he can help her assess the losses
24 and -- whether Facebook will make an exemption or
25 extension for particular apps. 06:24:40

Page 360

CONFIDENTIAL

1 And this, again, is in connection with 06:24:42
2 the implementation of platform 3.0, right?
3 MR. BLUME: Objection. Form. Scope.
4 THE DEPONENT: I can't confirm exactly
5 what these folks meant. We should speak to them. 06:24:53
6 But it looks like that's the discussion they're
7 having given the subject of the email.
8 MR. LOESER: Let's go to the next
9 exhibit, which is the slide deck that -- that
10 Ms. Mosseri sent to KP, attached to the email that 06:25:12
11 we just went through on December 10th, 2013. And
12 this will be another new exhibit.
13 (Exhibit 339 was marked for
14 identification by the court reporter and is
15 attached hereto.) 06:25:27
16 Q. (By Mr. Loeser) And I represent to you,
17 Mr. Cross, that this is the attachment to
18 Ms. Mosseri's email.
19 And you'll remember in KP's response he
20 indicated that he made some notes and provided some 06:25:56
21 comments on her slide deck.
22 Do you recall that?
23 A. Yes, I do.
24 Q. Okay. So if we go to the -- it looks
25 like the seventh slide, and then go to the next 06:26:14

Page 361

CONFIDENTIAL

1 page. The -- the notes are not visible -- visible 06:26:20

2 on the view that we're looking at.

3 I will note for the record that the

4 version that we're introducing as an exhibit has

5 notes in -- in the document that appear to be the 06:26:35

6 notes that -- that KP made on the slide deck.

7 We can put this exhibit aside. We're

8 going to go to another version of this deck.

9 Let's -- actually, before we do that, go

10 to the first page of the deck. 06:26:48

11 Do you see the title of this slide deck,

12 Mr. Cross?

13 A. I do.

14 Q. And could you read that title for the

15 record. 06:27:05

16 A. "Criteria for granting Exemptions and

17 Extensions."

18 Q. And the date of this document is 12/5/13;

19 is that right?

20 A. I assume that's the American format, 06:27:18

21 so...

22 Q. Fair -- fair point.

23 I interpret that as December 5th, 2013;

24 is that how you interpret it as well?

25 A. Annoyingly, yes, it is, how I interpret 06:27:30

Page 362

CONFIDENTIAL

1 it. 06:27:33

2 Q. And -- and the author is Monica Mosseri;
3 is that right?

4 A. It is. And the critical piece of
5 information on this is the word "Draft." 06:27:39

6 MR. LOESER: Right. Right.

7 Okay. So let's go -- you can put that
8 exhibit aside and we're going to go to another
9 version of this presentation.

10 This will be marked as Exhibit 340. 06:27:50

11 (Exhibit 340 was marked for
12 identification by the court reporter and is
13 attached hereto.)

14 MR. LOESER: And when you -- when it
15 comes up, we'll look at the first page of this 06:28:17
16 slide deck as well.

17 Q. (By Mr. Loeser) And fair to say that
18 this is another -- this also is a slide deck, and
19 if you could read the title into the record.

20 A. "Criteria for granting Exemptions and 06:28:44
21 Extensions, Draft, 12/5/13".

22 Q. Okay. And if we could go back to the
23 metadata.

24 So I'll -- I'll state for the record that
25 this was a version of this document that was also 06:29:06

Page 363

CONFIDENTIAL

1 produced by Facebook. And -- and this is the 06:29:09
2 metadata associated -- metadata associated with
3 that document. We can move on to the document
4 itself.

5 So let's go to the -- the second -- 06:29:28
6 the -- it looks like the second slide in the -- in
7 the deck which has the heading decision -- well --
8 yeah, let's look at this agenda. This is page 2 of
9 the deck, I believe.

10 And you see there's "Agenda," and it says 06:29:47
11 "Decision Buckets," right?

12 A. Yeah.

13 Q. And then there's a list of different
14 categories of apps, right, "Non-Games, Games,
15 PMD's, Mobile/TV/Devices"? 06:29:59

16 A. I see.

17 Q. And what -- what are PMDs?

18 A. PMDs, I think, refers to page management
19 developers. I'm not 100 percent sure of that -- of
20 the acronym. 06:30:20

21 Q. So the first item on the agenda is
22 "Decision Buckets"; is that right?

23 A. That's the first item on the agenda.

24 Q. Okay. And if we go to the next page of
25 the slide deck, you see there's a slide that says 06:30:32

Page 364

CONFIDENTIAL

1 "Decisions Buckets." 06:30:37

2 Do you see that?

3 A. I see that.

4 Q. And, again, this is a presentation on the

5 criteria for granting exemptions and extensions, 06:30:42

6 right?

7 A. No. This is a proposed -- a set of

8 proposals for potentially how to think about this.

9 Q. Okay. So under the "Decision Buckets"

10 listed in this slide, in this presentation on the 06:31:05

11 criteria for granting exemptions and extensions,

12 the first bucket is "Exemption."

13 Do you see that?

14 A. I do see that.

15 Q. And why don't you read for the record 06:31:16

16 what -- how that bucket is described.

17 A. On the document it says "Strategic value

18 for both companies long term."

19 Q. Okay. And then let's look at the second

20 bucket identified. 06:31:29

21 That's "Extension"; is that right?

22 A. That's correct.

23 Q. And why don't you read for the record

24 what that -- how that bucket is described.

25 A. "Contract with backward capability clause 06:31:38

Page 365

CONFIDENTIAL

1 Company that cannot move quickly and what length" 06:31:42
2 of "extension and what capabilities."
3 Q. And the third bucket identified here is
4 "Standard"; is that right?
5 A. That's what's on the slide. 06:31:53
6 Q. Okay. And what's the descriptions of
7 that bucket?
8 A. "No access to private capabilities."
9 Q. So if we go back to the "Agenda" slide.
10 Again, after the "Decision Buckets," 06:32:10
11 there are these -- these four categories.
12 The first "Non-Games." The second,
13 "Games." The third "PMD's." And the fourth
14 "Mobile/TV/Devices"; is that right?
15 A. That's right. 06:32:31
16 Q. Okay. So now let's go to the fourth page
17 of the presentation and you see the cover slide,
18 "Non Games."
19 A. Yup.
20 Q. Waiting for it here. "Non Games." There 06:32:50
21 it is.
22 And then the slide that comes after that
23 is a description of apps that are within the
24 "Non Games" category, and there's more detail on
25 those different apps. 06:33:11

Page 366

CONFIDENTIAL

1 If you look at that slide, it's captioned 06:33:13
2 "Categories of apps and impact."
3 Is that a fair read of this presentation,
4 that there's a title slide that says "Non Games,"
5 and the next page has more detailed information. 06:33:20
6 Would you read that to -- for -- for
7 the -- the next slide to be related to the title
8 slide?
9 A. I think that's a fair read, yes.
10 Q. And are all of these apps identified here 06:33:31
11 nongames?
12 A. I would --
13 MR. BLUME: Objection. Form.
14 THE DEPONENT: -- consider all of the
15 categories listed here as nongames. 06:33:41
16 Q. (By Mr. Loeser) And then within this
17 category of nongames, you'll see that the slide has
18 a category, "Sub Categories that require further
19 assessment."
20 Do you see that? 06:33:55
21 A. I do.
22 Q. And there are five different
23 subcategories that are identified; is that right?
24 A. I do.
25 Q. And they are -- "Social network 06:34:06

Page 367

CONFIDENTIAL

1 influencing," that's the first one, right? 06:34:09

2 A. Yeah.

3 Q. "Media Aggregators" is the second; is
4 that right?

5 A. Correct. 06:34:17

6 Q. "Social Apps" is the third; is that
7 right?

8 A. Correct.

9 Q. "TV" is the fourth, correct?

10 A. Correct. 06:34:25

11 Q. And what's the fifth one identified
12 there?

13 A. The word on the slide is "Strategic."

14 Q. So let's go to next page of this slide
15 deck. 06:34:41

16 And can you read for the record what the
17 title of this slide is.

18 A. The title of the slide is "What do we
19 have to lose?"

20 Q. Okay. And this is a -- is a slide that 06:34:53
21 is in the presentation called "Criteria for
22 granting Exemptions and Extensions"; is that right?

23 A. It's in a slide which is a draft of how
24 to think about that potentially.

25 Q. So let's go through each of these items 06:35:11

Page 368

CONFIDENTIAL

1 on here. 06:35:13

2 The first one is "Revenue"; is that

3 right?

4 A. That's what's on the slide.

5 Q. And then what are the questions asked in 06:35:18

6 connection with "Revenue"?

7 A. "Big Neko spenders? Will access to graph

8 increase spend?"

9 Q. Okay. And what are -- what is Neko?

10 A. Neko is the code name for mobile app 06:35:31

11 install ads.

12 Q. So one of the questions being asked on

13 "What do we have to lose?" is whether -- whether

14 revenue would be lost by -- by big Neko spenders;

15 is that -- that right? 06:35:45

16 MR. BLUME: Objection. Form. Scope.

17 THE DEPONENT: What's on the slide is --

18 is "Big Neko spenders" is under the heading "What

19 do we have to lose?"

20 Q. (By Mr. Loeser) For revenue, right? 06:35:59

21 A. It's next to "Revenue" on the slide.

22 Q. Okay. And the next item there is "Will

23 access to Graph increase spend?" And that's also a

24 question related to what do we have to lose with

25 regard to revenue; is that right? 06:36:13

Page 369

CONFIDENTIAL

1 MR. BLUME: Objection. Form. 06:36:15

2 THE DEPONENT: It's a question, as
3 written on the slide.

4 Q. (By Mr. Loeser) Question relating to
5 "What do we have to lose?" related to revenue, 06:36:22
6 right?

7 MR. BLUME: Same objection.

8 THE DEPONENT: I mean, if -- if I'm just
9 reading a slide now.

10 Q. (By Mr. Loeser) Well, actually, you're 06:36:34
11 testifying on behalf of Facebook.

12 So did Facebook consider the -- the loss
13 that would relate to revenue because of big Neko
14 spenders?

15 MR. BLUME: Objection. Form. And scope. 06:36:48

16 THE DEPONENT: So the slide here
17 indicates that when thinking about the potential
18 impact of these changes, along with several other
19 accesses, it was a question being asked.

20 Q. (By Mr. Loeser) Okay. And another 06:37:05
21 question being asked in that context was "Will
22 access to graph increase spend?"; is that right?

23 MR. BLUME: Objection. Form. And scope.

24 THE DEPONENT: The slide suggests that
25 the author was asking that question. 06:37:16

Page 370

CONFIDENTIAL

1 Q. (By Mr. Loeser) The author is a person 06:37:19
2 who works for Facebook, who developed a PowerPoint
3 called "Criteria for granting Exemptions and
4 Extensions," right?

5 THE COURT REPORTER: Wait. Mr. Blume, 06:37:29
6 you were muffled. What --

7 MR. BLUME: Sorry. I -- my objection was
8 asked and answered.

9 Q. (By Mr. Loeser) You can answer,
10 Mr. Cross. 06:37:43

11 A. This is a slide deck with that title,
12 with this slide on it, produced by an employee of
13 Facebook.

14 Q. (By Mr. Loeser) And then if we move down
15 the -- the column on "What do we have to lose," the 06:37:56
16 second item is "Visibility/Influence."

17 Do you see that?

18 A. I do see that.

19 Q. And what were the questions that Facebook
20 posed with regard to visibility and influence? 06:38:10

21 MR. BLUME: Objection. Form. Scope.

22 THE DEPONENT: What's on the slide
23 written by Monica is "Risk of bad press?" And "Is
24 there user value and will they be upset?"

25 Q. (By Mr. Loeser) And so the risk of bad 06:38:26

Page 371

CONFIDENTIAL

1 press, in the context of this transition to the new 06:38:29
2 platform, why would there be a risk of bad press
3 relating to that transition in which certain
4 permissions were deprecated?

5 MR. BLUME: Objection. Form. And scope. 06:38:43

6 THE DEPONENT: It's hard to answer that
7 on behalf of the company.

8 But what I can say in a personal
9 capacity, having worked in this area, is that the
10 changes that were being proposed at the time would 06:38:55
11 have had an impact on several -- many applications
12 built on the Facebook developer platform, and there
13 was a concern that they might be vocal about their
14 displeasure.

15 Q. (By Mr. Loeser) And now the next item is 06:39:13
16 "Users/Engagement," and the question is "Will they
17 remove login resulting in a MAU drop?"

18 Tell me what that means.

19 MR. BLUME: Objection. Form. Scope.

20 THE DEPONENT: Well, what they mean is -- 06:39:29
21 by remove login is that the -- an app might choose
22 to remove a Facebook login integration, and that
23 might result in a monthly activity user drop.

24 Q. (By Mr. Loeser) And so you're -- what
25 this is suggesting is that because of the changes 06:39:48

Page 372

CONFIDENTIAL

1 to the platform, an app may decide not to 06:39:50
2 participate on the platform anymore causing a drop
3 in monthly average users of the platform; is that
4 right?

5 MR. BLUME: Objection. Form and scope. 06:40:02

6 THE DEPONENT: This is -- MAU is monthly
7 active, rather than average users.

8 One of the -- one of the concerns
9 discussed at the time is that these changes might
10 require developers to deprecate or that developers 06:40:20
11 would choose to deprecate their applications and,
12 therefore, no longer participate in the Facebook
13 developer platform resulting in worse outcomes for
14 users.

15 Q. (By Mr. Loeser) And why does Facebook 06:40:35
16 care about monthly active users?

17 MR. BLUME: Objection. Beyond the scope.

18 THE DEPONENT: Yeah. I -- this is beyond
19 the scope of like what I've been prepared to
20 testify on. 06:40:47

21 Sorry. I don't feel I can answer that
22 question.

23 Q. (By Mr. Loeser) So in connection with
24 the -- the impact of the transition to the new
25 platform, Facebook is not prepared to testify about 06:40:59

Page 373

CONFIDENTIAL

1 why it cares about an impact relating to a drop in 06:41:02

2 monthly active users?

3 MR. BLUME: Objection to form. And

4 scope.

5 THE DEPONENT: It's unclear what MAU 06:41:12

6 means in this context. It could be -- MAU is a

7 metrics used to define many different things at

8 Facebook.

9 Q. (By Mr. Loeser) All related to monthly
10 active users, right? 06:41:25

11 A. In different context, though. There are
12 different products that calculate monthly active
13 users for their product.

14 Q. Okay. So looking at the next item on
15 here, it says "Data Exchange." 06:41:38

16 Do you see -- see that?

17 A. I do.

18 Q. What does data exchange mean for
19 Facebook?

20 MR. BLUME: Objection. Form. And scope. 06:41:48

21 THE DEPONENT: I can't answer what does
22 data exchange mean for Facebook, in general. That
23 would be beyond the scope.

24 Well, I can say there in this context --
25 again, given my personal experience -- is one of 06:42:01

Page 374

CONFIDENTIAL

1 the benefits of the Facebook developer platform was 06:42:05
2 that users would share their activity in apps back
3 to Facebook. And that was seen as a good thing
4 because it would be more content on their timeline
5 and in newsfeed for their friends. 06:42:22

6 Q. (By Mr. Loeser) And the data was also
7 beneficial for Facebook's business, right?

8 MR. BLUME: Objection. Form. And beyond
9 the scope.

10 THE DEPONENT: I'm not able to answer the 06:42:35
11 question on -- on the business, on the advertising
12 side. That's not my area of expertise.

13 Again, what I can say is that one of the
14 values of the Facebook developer platform is that
15 information about users' activity and apps, users 06:42:52
16 would decide to share that back to Facebook, and
17 that would be content on their timeline, in their
18 newsfeed.

19 And that would be a reason for their
20 friends to come back and look at newsfeed. So good 06:43:04
21 for -- good for users and ultimately good for
22 Facebook.

23 Q. (By Mr. Loeser) Okay. And so the
24 question being asked with regard to "Data Exchange"
25 is "Will we lose access to OG data?" 06:43:16

Page 375

CONFIDENTIAL

1 What is OG data? 06:43:19

2 MR. BLUME: Objection. Form.

3 THE DEPONENT: OG data, in this context,
4 refers to Open Graph data, which in this context,
5 again, specifically refers to users choosing to 06:43:30

6 share their activity in apps back to their Facebook
7 timeline.

8 Q. (By Mr. Loeser) And OG data would also
9 include data about users' friends, right?

10 MR. BLUME: Objection. Form. 06:43:44

11 THE DEPONENT: No.

12 Q. (By Mr. Loeser) Why not?

13 A. So in this context, it's about a user
14 sharing their activity back to Facebook.

15 Q. Can their activity also involve 06:44:01
16 information about their friends?

17 A. No. A user in -- in this context, is
18 about a user sharing their activity in an app back
19 to Facebook.

20 Q. So if their activity was "Went to the 06:44:16
21 restaurant with my friend," that's not information
22 about the user's friend?

23 MR. BLUME: Objection. Form.

24 THE DEPONENT: I mean, in this context,
25 that's what it means. It's -- there was a 06:44:27

Page 376

CONFIDENTIAL

1 mechanism for a user to tag their friend in a 06:44:32
2 story. But in this case, it's about a user
3 choosing to share activity in their -- in an app
4 with their friends on Facebook. And that's --
5 that's specifically what this is referring to, in 06:44:46
6 my understanding.

7 Q. (By Mr. Loeser) Okay. And then the next
8 question is "Do certain products depend on this
9 data?"

10 What -- what data is this referring to? 06:44:52

11 A. I'm not sure exactly what data is -- is
12 this data. I'm inferring that it means OG data.

13 But, you know, that -- that's -- that's
14 my inference. It's not entirely clear from this
15 slide what -- what this data means. 06:45:13

16 Q. So Ms. Mosseri -- Mosseri -- or Mosseri
17 here was evaluating -- when answering the question
18 "What do we have to lose," one of the categories
19 she identified was data exchange, right?

20 MR. BLUME: Objection. Form. 06:45:26

21 THE DEPONENT: Data exchange is on -- on
22 the slide.

23 Q. (By Mr. Loeser) So let's go to the next
24 page of the slide.

25 Do you see that the header or the title 06:45:42

Page 377

CONFIDENTIAL

1 of that slide is "Loss Assessment"? 06:45:46

2 A. I do.

3 Q. So based on this slide, it appears that
4 Facebook did a loss assessment using the different
5 categories of apps that were earlier identified in 06:46:00
6 this presentation; is that right?

7 MR. BLUME: Objection. Form. And scope.

8 THE DEPONENT: I mean, it's hard to --
9 it's hard to read this slide.

10 The title "Loss Assessment" is there, but 06:46:12
11 everything else is -- is kind of squiffy.

12 Q. (By Mr. Loeser) Okay. So if you go back
13 to the slide, "Categories of apps and impact" --
14 and -- and I can clarify this with -- with some
15 questions. I can see why you were confused. 06:46:28

16 The subcategories that required further
17 assessment were "Social Network Influencing, Media
18 Aggregators, Social Apps, TV" and "Strategic"; is
19 that right?

20 A. That's what I see on the slide, yeah. 06:46:41

21 Q. Okay. So now when you go forward to the
22 "Loss assessment" slide, the categories of apps for
23 which there was further assessment were "Media
24 Aggregator, Social Network Influencing, Social
25 Apps, TV" and "Other strategic." 06:46:50

Page 378

CONFIDENTIAL

1 Do you see that? 06:46:54

2 A. That's what I see on the slide.

3 Q. Okay. So this is a further loss
4 assessment pertaining to those specific categories

5 that were subcategories of the nongames category. 06:47:03

6 Do I have that right?

7 MR. BLUME: Objection. Form. And scope.

8 THE DEPONENT: I -- I think you -- I

9 think you probably have these right. These are --

10 these are five categories that are mentioned on the 06:47:18

11 previous slide.

12 Q. (By Mr. Loeser) Okay. And then if you

13 look at the "Loss assessment," it's broken down

14 into four different categories. And they are

15 "Revenue, Visibility Influence, Users/Engagement" 06:47:28

16 and "Data Exchange."

17 Do you see that?

18 A. I do see that.

19 Q. And those were the four different

20 categories that was identified on the slide "What 06:47:39

21 do we have to lose"; is that right?

22 A. That matches the previous slide.

23 Q. So let's look down the other strategic

24 column of this loss assessment. And if you look at

25 the -- across from the "Revenue (Q4 '13)" line -- 06:47:59

Page 379

CONFIDENTIAL

1 do you see that in the middle of the page, "Revenue 06:48:04

2 (Q4 '13)"?

3 A. I see it in the middle of the page, yeah.

4 Q. And so for the purpose of this analysis,

5 Facebook was able to identify the revenue for 06:48:14

6 specific apps that were taken into account when

7 evaluating loss assessment rating -- relating to

8 revenue for Q4 '13; is that right?

9 MR. BLUME: Objection. Form. And scope.

10 THE DEPONENT: I -- I am not -- I 06:48:37

11 can see -- I can see on the slide, but --

12 discussing exactly how revenue was calculated or --

13 is -- is not something I've been prepared to

14 testify about -- I'm prepared to testify about.

15 Q. (By Mr. Loeser) Okay. So one of the 06:48:54

16 topics here was the revenue impact of -- of

17 whitelisting, for example, right?

18 A. I think that -- I think that's right,

19 yes.

20 Q. And so this is a slide that -- that shows 06:49:11

21 that Facebook evaluated loss assessment, and one of

22 the categories of loss assessment that was

23 evaluated was revenue, right?

24 MR. BLUME: Objection. Form. And scope.

25 THE DEPONENT: Again, in this slide deck 06:49:30

Page 380

CONFIDENTIAL

1 that -- that Monica prepared, she has done some 06:49:35
2 analysis or pulled some data, and one of those data
3 is some revenue numbers.

4 Q. (By Mr. Loeser) And so it appears from
5 this slide deck that when considering the other 06:49:50
6 strategic partners, and these other subcategories,
7 and the impact of the transition to the new
8 platform, Facebook was able to evaluate the revenue
9 associated with other strategic partners; is that
10 right? 06:50:08

11 MR. BLUME: Objection. Form. And beyond
12 the scope.

13 THE DEPONENT: Yeah. As I say, I think
14 it's beyond the scope of what I've been prepared to
15 testify on. 06:50:19

16 Q. (By Mr. Loeser) Okay. Can you answer
17 the question?

18 A. From looking at the slide here, there is
19 some revenue numbers for some developers and
20 partners, but it's unclear to me exactly what 06:50:37
21 that -- what -- where that -- where that data came
22 from or exactly what it refers to. But there's
23 some revenue numbers on the slide.

24 Q. So the revenue numbers on the slide
25 include -- and you tell me if I'm reading the slide 06:50:51

CONFIDENTIAL

1 wrong -- but for Q4 '13, so fourth quarter of 2013, 06:50:55
2 eBay has \$639,342 of revenue. That was revenue for
3 Facebook.

4 Is that -- is that a fair way to read
5 this slide? 06:51:11

6 MR. BLUME: Objection. Form. And scope.

7 THE DEPONENT: I can't confirm exactly
8 what was meant by the author. But I'm reading that
9 there is those numbers on the slide, yes.

10 Q. (By Mr. Loeser) So based upon this 06:51:26
11 slide, it appears that Facebook evaluated the
12 revenue paid by certain partners when looking at
13 the impact of the introduction of the new platform
14 would have on those partners if they were to stop
15 using the platform? 06:51:40

16 MR. BLUME: Objection to form.

17 Q. (By Mr. Loeser) Do you think that's --

18 MR. BLUME: Sorry.

19 THE DEPONENT: No.

20 MR. BLUME: Hold on. Did you finish your 06:51:49
21 question, Derek?

22 MR. LOESER: Yes.

23 MR. BLUME: Oh, then objection. Form.
24 And scope.

25 THE DEPONENT: So my understanding of -- 06:52:04

Page 382

CONFIDENTIAL

1 of reading this is that there is some data on 06:52:06
2 revenue from some partners, but it's not clear to
3 me that this is directly related to whether or not
4 they would stop using the platform.

5 It indicates that they -- again, seeing 06:52:27
6 what I see on the slide -- that that was the
7 revenue in the quarter. It does not make a
8 specific connection to whether or not they would be
9 impacted by the changes and how.

10 Q. (By Mr. Loeser) But does Facebook track 06:52:44
11 the revenue of -- that it receives from its
12 strategic partners?

13 MR. BLUME: Form. Scope.

14 THE DEPONENT: I'm not well up on the
15 advertising side of Facebook's business. And I 06:53:03
16 haven't worked in the strategic partnership team
17 for a long time. So I don't feel I can clearly
18 answer that question.

19 Q. (By Mr. Loeser) So where would Facebook
20 go if it wanted to answer the question of the 06:53:16
21 amount of revenue paid to Facebook in the Q -- in
22 Q4 '13 for Amazon, Apple, Spotify, Bing, Windows,
23 Skype, eBay and Ticketmaster?

24 MR. BLUME: Objection. Form. And scope.

25 THE DEPONENT: I would probably go and 06:53:33

Page 383

CONFIDENTIAL

1 ask someone on the advertising side of the 06:53:35
2 business.

3 Q. (By Mr. Loeser) And if Facebook wanted
4 to evaluate the loss of revenue to Facebook, if all
5 of the partners I just listed stopped using the 06:53:46
6 platform, how would Facebook do that?

7 MR. BLUME: Objection. Form. And scope.

8 THE DEPONENT: I'm -- I'm not sure --
9 I -- I -- I don't know. I'm not an expert in
10 analyzing spend and what the impact is. 06:54:01

11 Remember, the -- we're talking here about
12 a bunch of platform changes. Revenue could come
13 from -- from a number of different reasons. This
14 revenue is not necessarily directly connected to
15 their integration. 06:54:22

16 So I -- I actually -- again, I don't
17 know -- and I want to be clear -- I'd be
18 speculating. I -- I do not know. And I -- I'm not
19 an expert in how you would assess the potential
20 loss in revenue if the integrations were stopped. 06:54:37

21 Q. (By Mr. Loeser) So fair to say when
22 Ms. Mosseri was evaluating "What do we have to
23 lose," one of the topics that she evaluated was
24 revenue, right?

25 MR. BLUME: Objection. Asked and 06:54:52

CONFIDENTIAL

1 answered. 06:54:52

2 THE DEPONENT: I feel like I've answered
3 that question.

4 Q. (By Mr. Loeser) So that's a "yes"?

5 A. I feel like I've answered that question. 06:55:02

6 MR. BLUME: You can answer.

7 Q. (By Mr. Loeser) You can answer.

8 MR. BLUME: You -- you can answer again,
9 Simon, if you remember.

10 THE DEPONENT: Okay. Revenue -- there 06:55:09

11 are -- there are some revenue stats on here, but
12 it's not necessarily making a connection with --
13 with impact. It's just -- my understanding is
14 this is -- this is statements of revenue in a
15 quarter by these companies and that's it. 06:55:27

16 Q. (By Mr. Loeser) Okay. On a page with
17 the title "Loss assessment"; is that right?

18 A. The numbers are on a page with the title
19 "Loss assessment." But that doesn't mean that
20 this would be the loss if -- this would be an 06:55:41
21 assessed loss based on the proposed changes.

22 Q. Fair to say, however, that Ms. Mosseri
23 was identifying the revenue received from certain
24 partners in connection with her evaluation of
25 potential losses that Facebook would experience as 06:55:59

Page 385

CONFIDENTIAL

1 a result of the transition? 06:56:01

2 MR. BLUME: Objection. Form. And scope.

3 THE DEPONENT: Again, reading -- reading

4 from the slide here, there's a slide with "Loss

5 assessment" in the title, and there are some 06:56:14

6 revenue numbers, very small number of companies.

7 Q. (By Mr. Loeser) And fair to say if -- if

8 Facebook could identify those revenue numbers for

9 eBay and Spotify, it could also identify them for

10 all of its other strategic partners? 06:56:30

11 MR. BLUME: Objection. Form. Scope.

12 THE DEPONENT: I do not know how -- I --

13 I do not know if that's possible. It's -- as we've

14 discussed previously, definition of strategic

15 partner is not like clearly defined and/or 06:56:45

16 universal.

17 And I'm not an expert and would not know

18 and was not -- did not prepare to answer questions

19 on how revenue would be assessed for a given

20 company. It's -- it's not something I know how to 06:57:10

21 do.

22 Q. (By Mr. Loeser) You can't answer the

23 question, but it's an answerable question by

24 Facebook, right?

25 MR. BLUME: Objection. Form. Scope. 06:57:20

Page 386

CONFIDENTIAL

1 THE DEPONENT: It's -- it -- again, it's 06:57:24
2 potentially an answerable question by Facebook.
3 But I'd be speculating. As I say, I -- I am not
4 aware of how this would be done.

5 Q. (By Mr. Loeser) So let's move to the 06:57:38
6 next type of loss that -- that was identified here,
7 and it's "Visibility" and "Influence."

8 Do you see -- see that?

9 A. I see that.

10 Q. And you'll see for the "Other Strategic" 06:57:49
11 category of partners, it notes "High"?

12 A. It seems to note "High," yes.

13 Q. And so what does that indicate with
14 regard to those partners?

15 MR. BLUME: Objection. Scope. 06:58:05

16 THE DEPONENT: Impossible for me to say
17 here from the company's perspective. This is a
18 slide deck written by somebody. There's no
19 criteria defined for visibility and influence or
20 what high, medium or low would be in that context. 06:58:22

21 I think if you want to know that --

22 Q. (By Mr. Loeser) Do you --

23 A. -- it might be worth asking Monica.

24 Q. Sorry. I don't mean to talk at the same
25 time. 06:58:31

CONFIDENTIAL

1 A. Sorry. 06:58:32

2 Q. Does Amazon have a high visibility and
3 influence with -- with Facebook?

4 MR. BLUME: Objection. Form. Scope.

5 THE DEPONENT: I don't -- I -- I -- I 06:58:48

6 couldn't answer on the company's perspective about

7 like whether or not Amazon has -- has influence.

8 It's -- it's certainly a large organization. But

9 assessing its influence within Facebook is not

10 something I could testify to. 06:59:06

11 Q. (By Mr. Loeser) Okay. And then if we go
12 to the next category "Users/Engagement."

13 Do you see that?

14 A. I do see that.

15 Q. And you'll see that for each of these 06:59:15

16 subcategories there's a monthly active user number.

17 Do you see that?

18 MR. BLUME: Objection. Form.

19 THE DEPONENT: I do.

20 Q. (By Mr. Loeser) And the highest monthly 06:59:23

21 active user category in here is to "Other

22 Strategic"; is that right?

23 A. Of the five listed here, that's the

24 largest number.

25 Q. And "Other Strategic," it shows that 06:59:33

Page 388

CONFIDENTIAL

1 65,996,118 monthly active users. 06:59:36

2 So what does that mean with regard to the
3 "Other Strategic" category?

4 MR. BLUME: Objection. Form. And beyond
5 the scope. 06:59:49

6 THE DEPONENT: So in -- and this is one
7 of the things I was referring to earlier.

8 Different products measure their own MAU.
9 My understanding is in this context it refers to
10 whether or not the Facebook platform apps 07:00:06
11 associated with these entities and how many people
12 were actively using those Facebook platform apps.

13 Q. (By Mr. Loeser) And -- so if Facebook
14 wanted to isolate and identify the monthly active
15 users for all partners apps that were whitelisted 07:00:29
16 for the time period they were whitelisted, is that
17 something Facebook could do?

18 A. Can you help me understand, monthly
19 active users in what context?

20 Q. In -- in the context that you just used 07:00:47
21 when answering my prior question.

22 A. So whether or not the app IDs that were
23 associated with these entities, what their monthly
24 active user based off the application was?

25 Q. Right. 07:01:02

Page 389

1 A. And help me understand -- remind for me 07:01:03
2 the rest of your question so I can make sure I
3 answer it as accurate as I can.

7 And so can Facebook identify monthly
8 active users for all partner apps that were
9 whitelisted?

11 Q. (By Mr. Loeser) For the time period that
12 they were whitelisted?

17 I do not know whether or not that's an
18 answerable question.

23 A. Again, I don't know if that's something
24 that Facebook could do.

CONFIDENTIAL

1 question of whether it could do that? 07:02:16

2 MR. BLUME: Objection. Form.

3 THE DEPONENT: I would have to -- I -- I

4 don't know. I would have to speak to the folks on

5 the platform team to see if they knew if they could 07:02:33

6 provide some of the information.

7 And I think the -- the sales and

8 marketing and advertising part of the business

9 would -- somebody there would -- would be able to

10 answer whether or not that was answerable. 07:02:50

11 Q. (By Mr. Loeser) So let's look at the

12 last category of -- of -- of what Facebook has to

13 lose in the transition to the new platform, and

14 that's "Data Exchange."

15 And, again, under the "Other Strategic" 07:03:06

16 column, it lists a number of -- of apps. It says

17 "Bing/Win" -- which I assume is Windows -- "Skype:

18 Maps, Search, Video Message, Ticketmaster: Events

19 data."

20 What is that -- explain to what data 07:03:24

21 exchange occurs with regard to those particular

22 apps.

23 MR. BLUME: Objection. Form. And scope.

24 THE DEPONENT: I'm not able to answer

25 the apps with -- with that specificity. That would 07:03:35

Page 391

CONFIDENTIAL

1 require me to know the details of those 07:03:40
2 integrations a long time in the past.

3 So I'm -- I'm not able to -- to
4 explain -- to answer the question as -- as to
5 exactly what data -- how those integrations 07:03:51
6 functioned.

7 Q. (By Mr. Loeser) And can you answer more
8 broadly, or do you have anything other than what
9 you've already said about data exchange to -- to
10 say with regard to why it was taken into account 07:04:02
11 when evaluating what Facebook has to lose in the
12 transition to the new platform?

13 MR. BLUME: Objection. Form. And beyond
14 the scope.

15 THE DEPONENT: Related to these, I -- 07:04:13
16 I -- I -- I couldn't give a specific answer.

17 We talked about a previous category here
18 which is apps that people used that allowed them to
19 share their activity back to their friends on
20 Facebook, and that being a form of data exchange 07:04:30
21 that was the core -- one of the core value
22 propositions of the Facebook developer platform for
23 users and for developers.

24 MR. LOESER: We can move on to a new
25 exhibit. 07:04:48

Page 392

CONFIDENTIAL

1 MR. BLUME: Is this a -- is this a good 07:04:50
2 time for a break, Derek?

3 THE DEPONENT: Yeah, I would love a
4 break, if that's all right. A bio break.

5 MR. LOESER: Sure. Absolutely. 07:04:58

6 SPECIAL MASTER GARRIE: How long -- how
7 long of a break are we talking about, Counsel?
8 Maybe 20 -- how long do you need Mr. Cross? Do you
9 want to grab dinner?

10 THE DEPONENT: Well, what time are we 07:05:06
11 planning to go to? I have on my calendar until I
12 think --

13 SPECIAL MASTER GARRIE: These people --
14 oh, let's go off the -- off the record.

15 THE DEPONENT: Okay. 07:05:14

16 THE VIDEOGRAPHER: Okay. We're off the
17 record at 7:05 p.m.

18 (Recess taken.)

19 THE VIDEOGRAPHER: We are back on the
20 record at 7:39 p.m. 07:39:07

21 MR. LOESER: Okay. Mr. Cross, we're
22 going to introduce a new exhibit which will be
23 marked Exhibit 341.

24 (Exhibit 341 was marked for
25 identification by the court reporter and is 07:39:16

Page 393

CONFIDENTIAL

1 attached hereto.) 07:39:16

2 MR. LOESER: And so you should be looking
3 at now a document that has the header "Deprecated
4 f8 2014 Partnerships/Ops XFN."

5 Do you see that? 07:39:51

6 A. Yeah, I see that.

7 Q. And what does the title of that document
8 refer to?

9 A. I can't be 100 percent sure. But reading
10 the document, it seems to refer to a -- a Facebook 07:40:09
11 group or a Workplace group. Some -- some kind of
12 internal message board. It's -- it's hard to read
13 the exact structure.

14 Q. And -- and what does "Partnership/Ops
15 XFN" mean? 07:40:28

16 A. Partnerships would mean the --
17 partnerships team ops means the ops team. And XFN,
18 in Facebook parlance, stands for cross-functional,
19 i.e., people from different teams working together.

20 Q. And -- and what is the ops team? 07:40:47

21 That's developer operations; is that what
22 that means?

23 A. In this case, it would mean developers
24 operations, yeah.

25 Q. And just looking at this document, 07:40:57

Page 394

CONFIDENTIAL

1 what -- is this a -- a Quip or -- you know, what is 07:40:59
2 the -- what is the -- how is this document
3 generated?

4 Do you know?

5 A. I think this is a -- this is contents in 07:41:08
6 a Workplace group, which is a kind of internal
7 version of -- of Facebook. But I can't be
8 100 percent certain of that. And the formatting
9 makes it hard to -- to follow. But I -- I think
10 it's a Facebook group or a Workplace group. 07:41:26

11 Q. And so Facebook used its platform
12 internally for employees to communicate with each
13 other?

14 A. That's correct. Today that's a tool
15 called Workplace. But in the past, it was groups 07:41:43
16 on -- on Facebook that were only available to
17 employees.

18 Q. And is that a -- is that a product that
19 you can search?

20 So for example, if you wanted to search 07:41:59
21 on the word developer operations, could you -- is
22 that a searchable -- the tool allow for searches
23 like that?

24 MR. BLUME: Objection. Form. And scope.

25 THE DEPONENT: I can't -- I can't give a 07:42:16

Page 395

CONFIDENTIAL

1 canonical Facebook answer. But as a -- but as a 07:42:19
2 user of the tool, you -- you can search for things.
3 But I'm unclear on the -- the -- how -- how far the
4 index goes back or -- or how the -- the search
5 function works. 07:42:33

6 Q. (By Mr. Loeser) Okay. And it's a little
7 hard to read on this, but the last entry in this
8 series of messages is by you and it's -- it looks
9 like July 24th, 2014.

10 Do you see that at the very top of the 07:42:47
11 document?

12 A. I do.

13 Q. Okay. And is what I stated accurate?

14 A. Yeah. This is a message from me and I --
15 on July 24th, 2014. 07:43:01

16 Q. Okay. So it is a long string and the --
17 and the -- the font is small. And I'm going to ask
18 you to turn a few pages into this string to the
19 Bates number FB-CA-MDL-02978566.

20 A. I have it. 07:43:33

21 Q. Okay. And so -- yeah, there's the Bates.
22 And so if we go up and -- and -- to read,
23 we'll try to make this bigger if necessary.

24 But in the middle of that page there is a
25 post -- is that the right way to describe it, a 07:43:41

Page 396

CONFIDENTIAL

1 post? 07:43:44

2 A. I -- I think -- I think this is a post
3 if -- if I'm right in identifying where this is
4 from. We -- we can call it a post for the purposes
5 of this conversation. 07:43:54

6 Q. Okay. And there's a post from
7 Monica Mosseri, and it's dated February 10th, 2014;
8 is that right?

9 A. That's right.

10 Q. And I'll just, for the record, read part 07:44:05
11 of this post and -- and I have some questions for
12 you.

13 Monica Mosseri writes "I just wanted to
14 follow up on Jackie's post regarding the asks of
15 the partnership team. The POC's for each group" -- 07:44:23
16 what are POCs?

17 A. That would refer to points of contact.

18 Q. The points of contact "for each group
19 (listed below) are responsible for completing these
20 three buckets for" the "entire team. Please 07:44:37
21 complete this by end of day Wed Feb 12th. If you
22 have any questions please reach out to me and cc
23 Simon Cross."

24 Do you see that?

25 A. I do. 07:44:47

Page 397

CONFIDENTIAL

1 Q. And so Monica is informing the 07:44:51
2 partnership teams that they have to fill out a
3 spreadsheet that has three buckets; is that right?

4 MR. BLUME: Objection. Form.

5 Derek, does he have the -- does he have 07:45:02
6 scrolling ability to see the context?

7 THE DEPONENT: I -- I do.

8 So sorry, Derek. Could you ask your
9 question again.

10 Q. (By Mr. Loeser) Sure. 07:45:30

11 I just read a -- the beginning of the
12 post and -- and asked you that, based upon this,
13 Monica Mosseri notes, "I just wanted to follow up
14 on Jackie's post regarding the asks of the
15 partnership team. The Points of Contact for each 07:45:42
16 group are responsible for completing these three
17 buckets for" the "entire team."

18 And if you -- if you read through this,
19 she's asking the partnership teams to classify the
20 partners into one of three buckets; is that right? 07:45:52

21 MR. BLUME: Objection to form. And
22 scope.

23 THE DEPONENT: I think that's what she's
24 asking on the post, yes.

25 Q. (By Mr. Loeser) And if you move down 07:46:04

Page 398

CONFIDENTIAL

1 the -- the -- her post a little bit, there's a 07:46:05
2 No. 2. It says "Extension/Exemption."
3 Do you see that?
4 A. I do see that.
5 Q. And she states "Identify your Partners 07:46:16
6 with Platform Agreements or non-standard Platform
7 Agreements & identify 'Backward Compatibility.'"
8 Do you see that?
9 A. I do.
10 I do -- 07:46:25
11 Q. And I'm going to read another part of
12 this post.
13 She writes "The capabilities that are in
14 this spreadsheet columns U-B0 are capabilities that
15 are now public but soon won't be as they are tied 07:46:52
16 to a perm/API that we are deprecating in PS12n."
17 Do you see that?
18 A. I see that.
19 Q. So she's asking the partner points of
20 contact for each of these groups to put the 07:47:07
21 partners into three buckets, and this is in the
22 context of the permissions and the APIs that are
23 being deprecated in connection with PS12n, right?
24 MR. BLUME: Objection. Form. And scope.
25 THE DEPONENT: That's what's on the page. 07:47:25

Page 399

CONFIDENTIAL

1 Q. (By Mr. Loeser) So there's another line 07:47:35
2 in this post in which she says "The existing
3 Private API" -- or I'll start that again.

4 "The existing Private API's partners have
5 access to are not listed in this doc and will go 07:47:52
6 through a different review process."

7 Do you see that?

8 A. Yeah, I see that.

9 Q. And so she's identified, in addition to
10 partners that will have private APIs going forward 07:48:07
11 that didn't have them before, existing private API
12 partners, and she's indicating that that will go
13 through a different review process.

14 Do you recall that -- that different
15 review process for partners that already had access 07:48:22
16 to private APIs before the transition to the new
17 platform?

18 A. I do not recall a different -- that
19 different review process.

20 Q. And so did Facebook have a different 07:48:34
21 review process for partners that already had access
22 to private APIs before the transition to the new
23 platform, when deciding whether they would continue
24 to have access to information that partners would
25 no longer have access to after the transition to 07:48:52

Page 400

CONFIDENTIAL

1 the new platform? 07:48:55

2 MR. BLUME: Objection. Form. And scope.

3 THE DEPONENT: I -- I -- I can't -- I

4 can't say for certain if there was another process

5 or, if so, what that process was. 07:49:08

6 I don't -- I don't recall and it -- and

7 it hasn't come up in my conversations with people

8 or the documents I've reviewed.

9 Q. (By Mr. Loeser) So has Facebook

10 identified a group of partners that already had 07:49:21

11 private APIs at the time of the transition to the

12 new platform through which those partners were able

13 to obtain access to friend data?

14 MR. BLUME: Objection. Form. And scope.

15 THE DEPONENT: Sorry. Can you ask the 07:49:38

16 question again, please.

17 MR. LOESER: Sure. We can just read it

18 back.

19 THE DEPONENT: Sure.

20 MR. BLUME: I'll read it back. It's 07:49:43

21 fine.

22 Q. (By Mr. Loeser) So has Facebook

23 identified a group of partners that already had

24 private APIs at the time of the transition to the

25 new platform through which those partners were able 07:49:51

Page 401

CONFIDENTIAL

1 to obtain access to friend data? 07:49:53

2 A. Has -- has Facebook? I mean, sorry.

3 At what time period are you asking had
4 Facebook done that?

5 Q. At any point to the present. 07:50:05

6 MR. BLUME: Object to form.

7 THE DEPONENT: The -- the capabilities
8 tool and the other tools would have identified
9 which apps had access to -- to private APIs both
10 before and after the advent of API v2. 07:50:29

11 Q. (By Mr. Loeser) Thank you.

12 All right. If we can turn to -- and I'll
13 tell you the last four digits of the Bates -- Bates
14 number. But it's -8568, which is two pages where
15 we were before. 07:50:49

16 A. Yup. I see it.

17 Q. And there's a post by you in the middle
18 of the page dated -- it looks like January 20 --
19 I'm looking at the January 20 -- I can't see it on
20 my page, but right down -- January 22nd, 200- -- 07:51:12
21 okay. January 23rd, 2014. So top of the page
22 you're looking at now.

23 Do you see that?

24 A. "Game Face Time," is that the -- the one
25 you're referring to -- 07:51:31

Page 402

CONFIDENTIAL

1 Q. Yeah. 07:51:32

2 A. -- or the one below?

3 Q. No, that -- the -- the "Game Face Time."

4 A. Okay.

5 Q. And -- and you write at the beginning of 07:51:39

6 this, "Game Face Time. Notes from today's XFN:

7 1/ We have 6 weeks to go."

8 And what you're talking about here is

9 until the new platform becomes live, right?

10 A. At this time we were working to a launch 07:51:52

11 date that was -- ended up being significantly

12 sooner than -- than the launch date. This is just

13 another example of how much changed in -- in terms

14 of preparation versus what actual happened.

15 So this point, "6 weeks to go," that's 07:52:10

16 for a launch date that was being prepared for but

17 didn't happen.

18 Q. Okay. And then you have No. 2, and it

19 states "We will have a Partnerships/Ops all hands

20 on the Login v4/PS12n launch in early Feb." 07:52:25

21 Do you see that?

22 A. I see that.

23 Q. And then you have an item 3 -- and if we

24 could highlight it, we would.

25 In the middle of that page you state "The 07:52:37

Page 403

CONFIDENTIAL

1 next main job is to audit the 26" thousand -- and 07:52:41
2 it says k, but I'm reading thousand -- "The next
3 main job is to audit the 26,000 affected apps and
4 determine which apps must be whitelisted for which
5 features." 07:52:54

6 Do you see that?

7 A. I see that.

8 Q. Can you read the next sentence of your
9 post for the record.

10 A. What's on the page is "The bar is very 07:53:03
11 high: Contract commitment, inability to move fast
12 (physical devices etc) or super-strategic use
13 cases."

14 Q. So you put, at this time, six weeks
15 before the launch of the new platform, you 07:53:20
16 identified three different categories of -- of
17 apps; is that right?

18 A. Where am I identifying the three
19 different categories of apps?

20 Q. Well, one is -- you say -- I'll read it 07:53:38
21 again.

22 "The next main job is to audit the 26,000
23 affected apps and determine which apps must be
24 whitelisted for which features. The bar is very
25 high," and then you -- you identify "contract 07:53:50

Page 404

CONFIDENTIAL

1 commitment." 07:53:54

2 So that's one of the categories that
3 you're indicating should be whitelisted, right?

4 A. That's not a category I'm indicating
5 should be whitelisted. I'm indicating -- well, I 07:54:03
6 don't recall exactly what I meant. This is a long
7 time ago.

8 But on the page, it's indicating the
9 kinds of considerations that -- that may be
10 appropriate. But these are not -- 07:54:19

11 Q. Okay.

12 A. These are not a categorization or
13 taxonomy.

14 Q. All right. Well, let's try and
15 understand what it is. 07:54:29

16 There's 26,000 apps you're referring to;
17 is that right?

18 A. It says 26,000 affected apps on the -- on
19 this -- on the page, yes.

20 Q. And then you indicate that you're seeking 07:54:40
21 to determine -- Facebook is seeking to determining
22 which apps must be whitelisted for which features;
23 is that right?

24 MR. BLUME: Objection. Form.

25 And scope -- and scope. 07:54:51

Page 405

CONFIDENTIAL

1 THE DEPONENT: Again, what -- that's -- 07:54:56

2 that's what's on the page.

3 Q. (By Mr. Loeser) That's what you wrote on
4 this post?

5 A. Those are the words on this post that it 07:55:03
6 looks like I wrote.

7 Q. And then you say that "The bar is very
8 high."

9 You mean the bar for whitelisting is very
10 high? 07:55:11

11 A. I would assume that's what I meant.

12 Q. And then you said that -- the first thing
13 you identify after saying the bar is very high is
14 contract commitment.

15 And does that refer to apps for which 07:55:24
16 there was a contract commitment to continue to
17 allow access to something that's being taken away
18 in the transition to the new partnership -- or the
19 new platform?

20 MR. BLUME: Objection. Form. And scope. 07:55:38

21 THE DEPONENT: I can't be 100 percent
22 certain what I mean in this. Again, this is in a
23 personal capacity.

24 But my reading of that is that if we want
25 to whitelist them, if -- if they -- if there's a 07:55:51

Page 406

CONFIDENTIAL

1 whitelisting requirement, that we would need a 07:55:54

2 contract commitment to cover that -- to cover that.

3 Q. (By Mr. Loeser) And then you have

4 another description here of something different,

5 which is "inability to move fast (physical devices 07:56:03

6 etc)," and that's another group or type or

7 category -- and use the term that you want -- of

8 apps that -- that you thought -- or Facebook

9 thought needed to be whitelisted, right?

10 MR. BLUME: Objection. Beyond the scope. 07:56:19

11 And form.

12 (Brief interruption.)

13 (Discussion off the stenographic record.)

14 Q. (By Mr. Loeser) Okay. So we discussed

15 contract commitment, and the next thing you note -- 07:56:39

16 you note after noting "The bar is very high" is

17 "inability to move fast (physical devices)."

18 And are you saying there that another

19 group to be whitelisted are those that have an

20 inability to move fast? 07:56:48

21 A. I'm indicating that that might be one of

22 the criteria that maybe is for consideration.

23 Q. Okay. And what's the last criteria that

24 may be for consideration that you identify in this

25 post? 07:57:10

Page 407

1 A. Again, I wouldn't frame it as -- as 07:57:11
2 criteria. This is just a list of statements. But
3 the last one says "super-strategie use cases."

4 Q. And what were the super-strategic use
5 cases that you're referring to here in this post to 07:57:35
6 the teams involved in bucketing apps for the
7 purpose of determining which should have continued
8 access to -- to deprecated permissions?

9 MR. BLUME: Objection. Form.

10 THE DEPONENT: I do not know what 07:57:56
11 super-strategetic use cases I'm -- I'm referring to
12 here mean. I certainly can't remember what I'm
13 referring to.

14 Q. (By Mr. Loeser) So we're six weeks away
15 from launch and you used the phrase 07:58:11
16 "super-strategic use cases."

17 And can Facebook tell me now, through
18 you, as its corporate designee, what was meant by
19 "super-strategic use cases"?

| | | |
|----|--|----------|
| 20 | MR. BLUME: Objection. Form. And scope. | 07:58:27 |
|----|--|----------|

21 THE DEPONENT: I can't confirm what
22 super-strategic use cases mean, either as a
23 corporate representative and even in my personal
24 capacity, I don't recall what -- what that's
25 referring to. 07:58:43

CONFIDENTIAL

1 I think what's also important to note is 07:58:44
2 your mentioning six weeks to launch here. A, that
3 wasn't the case in the end. And B, no deprecations
4 were going to take a place for a year after launch.
5 And so there was no impending impact to existing 07:59:01
6 apps and integrations for a considerable time to
7 come. Much changed between then and later.
8 Q. (By Mr. Loeser) And this is a long
9 string and -- and I don't want to ask you to go
10 through all of it now. But perhaps on your next 07:59:20
11 break, you can take a spin.
12 I don't see any post from anyone saying
13 to you, leading right up until the launch date --
14 by July 24th, 2014, had the platform actually been
15 launched? 07:59:35
16 A. Sorry. Can you give that date again.
17 Q. Yeah.
18 When -- when did -- when did platform 3.0
19 launch?
20 A. The -- several changes were announced, 07:59:47
21 including API version 2 were launched on
22 April the 30th, 2014. But they only came into
23 force for new apps that were created after that
24 date. Any app that was created before that date
25 had no impact for another 12 months after that 08:00:07

Page 409

CONFIDENTIAL

1 date. 08:00:09

2 Q. Okay. And so -- and this -- this post,
3 the messages go up through July 24th, 2014, right?

4 That's what we are saw at the beginning
5 of the -- of the document? 08:00:22

6 A. It looks like that's the first post in
7 the thread.

8 Q. And I -- I've gone through the thread and
9 I don't see any question from any person of any one
10 of these teams saying to you, "Mr. Cross, what do 08:00:33
11 you mean by super-strategic?"

12 And I don't -- you don't need to take the
13 time right now, but perhaps on a break or
14 otherwise, you should review this document. And if
15 you find a question back to you stating some 08:00:45
16 confusion about what that means, if you'll please
17 let me know. I'd appreciate it.

18 MR. BLUME: We'll note your question,
19 but...

20 MR. LOESER: Okay. So we can move on to 08:01:01
21 the next exhibit, which has previously been marked
22 Exhibit 14.

23 THE DEPONENT: I have it.

24 Q. (By Mr. Loeser) So this is an email
25 dated February 9th, 2014, from Ime Archibong to 08:01:52

Page 410

CONFIDENTIAL

1 Eddie O'Neil and to you. "Importance," it states 08:01:56
2 "High."
3 "Subject: FW: Our teams next steps for
4 PS12n"; is that right?
5 A. I see that. 08:02:07
6 Q. And if you look down to Jackie Chang's
7 email to you and to Ime Archibong, she writes
8 "Actually - here's an updated version."
9 And that's a reference, I assume, to the
10 attachment to this -- this document; is that your 08:02:26
11 understanding?
12 MR. BLUME: Objection. Form.
13 THE DEPONENT: It's -- it's reasonable,
14 but I couldn't confirm it.
15 Q. (By Mr. Loeser) Okay. And she writes, 08:02:33
16 "I'll explain on the call, but in essence we're not
17 going to grant any exceptions, only extensions
18 based on contract and partner sensitivity."
19 Do you see that?
20 A. I do see that. 08:02:43
21 Q. And she writes, "Where I've
22 labeled 'exemptions' are actually private apis
23 today that allow for friend data to be read."
24 Do you see that?
25 A. I see that. 08:02:53

Page 411

CONFIDENTIAL

1 Q. She writes "I believe we should keep 08:02:55
2 maintaining these apis as private strategic ones -
3 however, it's worthwhile acknowledging this as
4 there's been some confusion by partnership teams on
5 how we plan to maintain these moving forward." 08:03:03

6 Do you see that?

7 A. I do see that.

8 Q. So tell me, what did Facebook mean in
9 this context by "private strategic ones"?

10 MR. BLUME: Objection. Form. And beyond 08:03:18
11 the scope.

12 THE DEPONENT: I can't answer that on
13 what does Facebook mean. Again, this is an email
14 thread between three people. So I don't think
15 Facebook has a view on what that means. 08:03:29

16 I can answer based on my understanding
17 and participation in this thread. But I don't
18 think it would be right to characterize that as --
19 as Facebook's opinion.

20 So with that, what this means is -- my 08:03:41
21 understanding is this means maintaining the
22 existing integrations that existed and had been
23 built to date -- we talked about these earlier --
24 that rely on private APIs to function.

25 Q. (By Mr. Loeser) Okay. And those are 08:04:06

Page 412

CONFIDENTIAL

1 referred to here as private strategic ones? 08:04:06

2 A. In the document, they're referred to as
3 private strategic ones.

4 Q. And she also references in her email
5 "partner sensitivity." 08:04:18

6 What -- what is partner sensitivity?

7 A. Again, I don't think there's a corporate
8 Facebook answer to that. And I wouldn't want to
9 take [sic] a speculation. I wouldn't want to
10 speculate as to what Jackie meant -- meant by that. 08:04:36

11 Q. And what does it mean to grant an
12 extension based on partner sensitivity?

13 A. Again, I don't know what -- there's no --
14 there's no corporate position on that. What Jackie
15 means by that, I think you would have to ask her. 08:05:06

16 MR. LOESER: So why don't we turn to the
17 presentation, which I will note for you is attached
18 to the email that we just went through from
19 Ime Archibong to you and Eddie O'Neil.

20 And this has been previously marked as 08:05:29
21 Exhibit 15.

22 And for the record, the email was sent on
23 February 9th, 2014, with this attachment.

24 THE DEPONENT: I have it.

25 Q. (By Mr. Loeser) Do you see the title of 08:05:54

Page 413

CONFIDENTIAL

1 this document -- or the first heading on -- on the 08:05:58
2 document is "[PS12n] Product Update - What -- "What
3 Are We Announcing"?

4 Do you see that?

5 A. I see that. 08:06:12

6 Q. And who -- who is the intended audience
7 of this -- of this presentation?

8 MR. BLUME: Objection. Form. And scope.

9 THE DEPONENT: I do not know who the
10 intended audience of this was. 08:06:27

11 Q. (By Mr. Loeser) So let's look at the --
12 the first page of this.

13 On the third bullet it states "Removing
14 access to non-app friends. friend_* permissions
15 being deprecated - apps will only get data about 08:06:52
16 people who've explicitly logged-in with Facebook,
17 not that user's incognizant friends."

18 What does "incognizant friends" refer to?

19 MR. BLUME: Objection. Form. And scope.

20 THE DEPONENT: I don't want to make a 08:07:13
21 determination of a -- of -- of -- there's no
22 corporate answer to what -- what that means. It
23 would be a -- a dictionary definition to look it
24 up.

25 Q. (By Mr. Loeser) Okay. What -- and -- 08:07:25

CONFIDENTIAL

1 and what -- how would Facebook use the term 08:07:26
2 "incognizant friends" in this context?
3 MR. BLUME: Scope --
4 THE COURT REPORTER: Wait. Mr. Blume,
5 you were muffled. 08:07:32
6 MR. BLUME: Asked and answered. And
7 beyond the scope.
8 THE DEPONENT: Yeah. I -- I don't think
9 Facebook has a -- a definition of what that means.
10 Again, the author of this deck chose to use that 08:07:47
11 word. It's not used --
12 (Simultaneously speaking.)
13 Q. (By Mr. Loeser) And next --
14 A. -- in any other context.
15 Q. And then the next bullet states 08:07:59
16 "read_stream (timeline API, Newsfeed API) being
17 publicly deprecated. Partner/contract only."
18 Does that suggest to you that the
19 decision at this point was to deprecate read stream
20 and make it available to partners by contract only? 08:08:16
21 MR. BLUME: Objection. Form. And scope.
22 THE DEPONENT: I -- I think it's wrong to
23 characterize anything as a -- as a decision. All
24 we can say is that this deck had been produced by
25 somebody and that was their belief or understanding 08:08:34

Page 415

CONFIDENTIAL

1 at the time. I don't think this is representative 08:08:39
2 of a -- of a decision.

3 Q. (By Mr. Loeser) Okay. And when you say
4 "somebody," we know from the prior email that this
5 deck was prepared by Jackie Chang, right? 08:08:48

6 MR. BLUME: Objection.

7 Is there a Bates-stamped version, Derek?
8 Oh, forget it. That's a native. Got it.

9 Q. (By Mr. Loeser) Right.

10 Mr. Cross, if you go back to Exhibit 14, 08:09:08
11 you'll see that this is a presentation that was
12 sent by Jackie Chang to Ime Archibong and to you,
13 right?

14 A. Yes.

15 Q. Can you put up the prior -- sorry. I 08:09:29
16 talked at the same time as you, which I -- I
17 apologize for.

18 A. Apologies.

19 Yes, it looks like this deck was authored
20 by Jackie. 08:09:41

21 Q. Okay. So let's go back to the deck.
22 And if we look at the last slide of the
23 deck, it says "Partnerships Update."

24 And do you see "Partner Identification &
25 Impact Assessment"? 08:10:05

Page 416

CONFIDENTIAL

1 A. I do. 08:10:06

2 Q. And the first bullet says "Product
3 identified the 26,000 App IDs & 45+ affected APIs."

4 Do you say that -- see that?

5 A. I see that. 08:10:18

6 Q. And you recall you were involved in
7 that -- in that bit of work, right?

8 A. I certainly was involved in pulling some
9 data at various time. It's not clear that I was
10 the source of those numbers. 08:10:28

11 Q. And then the next bullet says "XFN
12 coordination," and then it lists a series of
13 different types of -- of apps that should look
14 familiar at this point because we've seen the same
15 categorization in some of the documents that we've 08:10:41
16 gone through, right?

17 A. Some of these are the same as categories
18 in other documents.

19 Q. Okay. And it notes that Facebook was
20 "deploying a top down and bottoms up T0 partner 08:10:55
21 identification," right?

22 A. That's what it says on the slide.

23 Q. Okay. And you still don't recall what T0
24 refers to?

25 A. As per my previous testimony, it's a 08:11:08

Page 417

CONFIDENTIAL

1 categorization that was in use at the 08:11:11
2 partnerships -- in the partnerships team at this
3 time. But I don't recall what was categorized
4 within T0, nor the criteria for that.

5 Q. And the next bullet says "Extensions & 08:11:25
6 Private API Identification."

7 Do you see that?

8 A. I see that.

9 Q. And then it says "Granting no exemptions,
10 except in the cases where we have:" 08:11:35

11 Do you see that?

12 A. I see that.

13 Q. And the first one to where there would be
14 an exemption granted is "Wind-down"; is that right?

15 A. I don't think it's right to characterize 08:11:52
16 this as deterministic as to why an exemption or
17 extension would be granted. It's just a slide deck
18 written by a person at a time. So that's what's on
19 the slide.

20 Q. Okay. And this slide identifies 08:12:07
21 circumstances where an exemption would be granted
22 that would allow an app to continue to have access
23 to data that would no longer be available after
24 the transition to the new platform, right?

25 A. No. 08:12:28

Page 418

CONFIDENTIAL

1 MR. BLUME: Form. And scope. 08:12:29

2 THE DEPONENT: No.

3 Q. (By Mr. Loeser) You're saying "no"
4 because my statement is untrue?

5 A. That's correct. I don't think it 08:12:40
6 specifies -- sorry.

7 Read me your question again, and I'll be
8 able to point out the bit I was not able to agree
9 with.

10 Q. Sure. I'll just ask another question. 08:12:48

11 This says that Facebook's going to be
12 granting no exemptions, but then it lists some
13 situations where it would be granting exemptions,
14 right?

15 MR. BLUME: Objection to form. Scope. 08:12:58

16 THE DEPONENT: This does not -- sorry,
17 Rob. Say it again.

18 MR. BLUME: Objection. Form. And scope.

19 THE DEPONENT: This doesn't represent
20 Facebook's position on -- on -- on anything in 08:13:09
21 particular. This is the -- what this person who
22 authored the deck understood at the time.

23 Q. (By Mr. Loeser) Okay. So this person,
24 Jackie Chang, who authored this deck at the time,
25 February 14th, 2014 -- I'm sorry -- 08:13:24

Page 419

CONFIDENTIAL

1 February 9th, 2014, believed that Facebook would be 08:13:30
2 granting no exemptions except in the cases where we
3 have "1. Wind-down" and "2. Private APIs"; is that
4 right?

5 MR. BLUME: Objection. Form. And scope. 08:13:44

6 THE DEPONENT: That's what's on the
7 slide.

8 Q. (By Mr. Loeser) And let's look at
9 wind-down.

10 Do you know what wind-down means? 08:13:52

11 MR. BLUME: Objection. Scope.

12 THE DEPONENT: I wouldn't want to give
13 like a Facebook answer to that. I think there's no
14 standard definition for that.

15 In my personal capacity and having been 08:14:03
16 involved in this, to me, that means that there
17 would be a period by which those integrations would
18 be deprecated or turned off over time.

19 Q. (By Mr. Loeser) And with regard to
20 "Non-standard Platform Agreements specifying unique 08:14:22
21 Backwards Compatibility"; is that what happened?

22 MR. BLUME: Objection. Form.

23 THE DEPONENT: I can't give answers in
24 specific cases because I haven't investigated
25 everything and memorized everything. 08:14:41

Page 420

CONFIDENTIAL

1 But what I can say is that one thing 08:14:43
2 you'll notice from this slide deck further up is
3 that the plan of record in how to launch this
4 differed relatively -- relatively drastically from
5 what actually happened. 08:15:08

6 One of the big changes was the length of
7 the deprecation window, a year. And one of the
8 considerations would have been if there was a
9 partner with a contract, we specified a notice
10 period. And that notice period was less than the 08:15:28
11 notice given than there would be a contractual need
12 to comply. That's what it means by backwards
13 compatibility.

14 Q. (By Mr. Loeser) Okay. So that was one
15 of the situations where an exception would be 08:15:48
16 provided to the deprecations from occurring on the
17 time frame indicated in -- by Facebook, when it
18 implemented the platform, right?

19 A. Not necessarily. The -- my -- my
20 previous testimony is that if there was a 08:16:08
21 relationship with a partner that had a notice
22 period in the contract, then that might need to be
23 considered in the -- the migration, although most
24 of the entities that had private APIs had -- had
25 contracts with us, had some form of private API. 08:16:35

Page 421

CONFIDENTIAL

1 Q. Okay. And private API is another 08:16:38
2 category.

3 But you describe a circumstance in which
4 an exemption, as the -- as the format is presented
5 here would -- would be granted. And that would be 08:16:45
6 the backward compatibility-type contracts.

7 Facebook recognized there would need to
8 be an exemption for that -- for that group?

9 A. It's -- it's -- it's possible -- the --
10 the author of this deck suggests that that might be 08:16:59
11 a possible reason to grant an extension or an
12 exemption.

13 Q. Okay. So the author of this deck,
14 Jackie Chang, thought that another possible reason
15 was "Sensitive/strategic partner integrations 08:17:13
16 requiring extension"; is that right?

17 MR. BLUME: Objection. Form. And scope.

18 THE DEPONENT: I can read what's on here,
19 but this doesn't represent Facebook's position.
20 This is what Jackie wrote in the slide. 08:17:26

21 Q. (By Mr. Loeser) Okay. And I -- I didn't
22 see in the cover email -- it is -- does Jackie
23 report to Ime Archibong, or did she at this time?

24 A. I don't know for -- for certain. But my
25 understanding is that Jackie reported to Ime at 08:17:45

CONFIDENTIAL

1 this time. 08:17:49

2 Q. Okay. And did you see in that cover
3 email any indication by Ime that he thought Jackie
4 got it wrong when she described the circumstances
5 for exemptions? 08:17:58

6 MR. BLUME: Objection. Form.

7 THE DEPONENT: I didn't see anything in
8 the email thread, but that doesn't mean it -- there
9 was -- there was disagreement or uncertainty at
10 all. 08:18:13

11 I think -- remember, you're reading
12 documents here about -- that -- that -- that are a
13 team making progress as things shift around them.
14 Nothing in here necessarily is -- is what happened
15 or should have happened. 08:18:28

16 Q. (By Mr. Loeser) Okay. And then if we
17 look at the next bullet in this presentation
18 providing an update on -- what Facebook was going
19 to be announcing about its platform change.

20 No. 2 is "Private APIs." 08:18:42

21 Do you see that?

22 A. I see it on the slide.

23 Q. And the bullet says --

24 MR. BLUME: Objection. Hold --

25 objection. Sorry. 08:18:47

Page 423

CONFIDENTIAL

1 Objection to the initial 08:18:50

2 characterization. And form to the question.

3 Q. (By Mr. Loeser) And you'll see the

4 bullet then says "Private use-cases for exemption

5 (i.e. Mobile RCP)." 08:18:58

6 What does that refer to? What is --

7 what -- what are private use cases for exemption?

8 A. My understanding is that this refers to

9 the existing integrations that had access to

10 private APIs, both before the change in the public 08:19:21

11 API service area and would be considered unaffected

12 by the changes to the public service area.

13 Q. And are you aware of -- of any other

14 update or communication within the teams involved

15 in -- in the creation of this update of a different 08:19:57

16 format for determining when exemptions would be

17 granted?

18 MR. BLUME: Objection. Scope. Form.

19 THE DEPONENT: We've seen several

20 documents in this testimony that have very 08:20:11

21 different framings of what was launched, when --

22 what might be happening and why. So we've already

23 looked at some alternatives I would suggest.

24 Q. (By Mr. Loeser) Okay. And -- and we

25 went through a number of descriptions that referred 08:20:32

Page 424

CONFIDENTIAL

1 to strategic partners; is that right? 08:20:34

2 MR. BLUME: Objection. Form.

3 THE DEPONENT: We went through a number
4 of documents which associated some entities with
5 the word "strategic." 08:20:44

6 Q. (By Mr. Loeser) When discussing whether
7 those partners would continue to have access to
8 publicly deprecated permissions, right?

9 MR. BLUME: Objection. Form.

10 THE DEPONENT: Generally, when we were 08:20:57
11 discussing the broad set of changes to the public
12 platform surface area.

13 Q. (By Mr. Loeser) So I want to make sure
14 we're clear so far on the record and the transition
15 to the new platform. 08:21:22

16 We've gone through a number of documents
17 in which the platform team and the developer
18 operations team discussed the changes that we
19 made -- that we made to the social Graph when Graph
20 API version 2 was implemented, right? 08:21:35

21 MR. BLUME: Objection. Form.

22 THE DEPONENT: Sorry. Yeah, I'm -- I'm
23 not -- I'm not what -- what specifically I'd be
24 agreeing to the affirmative there.

25 Q. (By Mr. Loeser) Well, I guess we can 08:21:50

Page 425

CONFIDENTIAL

1 read the question back and see if there's anything 08:21:51
2 unclear about it.

3 So I want to make sure we are clear so
4 far on the record and the transition to the new
5 platform. We've gone through a number of documents 08:22:02
6 in which the platform team and the developer
7 operations team discussed the changes that would be
8 made to the social Graph when Graph API version 2
9 was implemented, right?

10 MR. BLUME: Objection. Form. 08:22:18

11 THE DEPONENT: So we've looked at a
12 number of documents that refer to the changes that
13 were ultimately launched on April the 30th, 2014.

14 Q. (By Mr. Loeser) And these changes
15 included publicly deprecating certain APIs that 08:22:31
16 were considered sensitive, including friend and
17 read stream permissions, right?

18 MR. BLUME: Objection. Form.

19 THE DEPONENT: API version 2 removed the
20 friend permissions. That was one of the changes 08:22:46
21 launched at the time.

22 Q. (By Mr. Loeser) And we've seen a variety
23 of discussions of the fact that certain apps and
24 partners would continue having access to certain of
25 the publicly deprecated APIs, right? 08:23:00

Page 426

| | | |
|---|--|----------|
| 1 | A. There are a number of integrations that | 08:23:06 |
| 2 | had access to private APIs before the change and | |
| 3 | would go on to have access to private APIs after | |
| 4 | the change. | |

5 Q. And in -- in addition to integrations, 08:23:21
6 there were other apps that were considered for
7 whitelist access to the publicly deprecated
8 permissions, right?

9 A. There was a number of discussions about
10 whether or not apps should be granted additional 08:23:35
11 time to migrate or discussions about exemptions.
12 We've seen those discussions.

13 Q. Okay. And Facebook management also
14 discussed how to choose which apps and partners
15 would continue having access to publicly deprecated 08:23:52
16 APIs, right?

17 MR. BLUME: Objection. Form.

18 THE DEPONENT: Can you describe what you
19 mean by "Facebook management"?

| | | |
|----|--------------------------|----------|
| 20 | Q. (By Mr. Loeser) Sure. | 08:24:04 |
|----|--------------------------|----------|

21 The -- the Facebook managers whose email
22 we reviewed over the course of the last several
23 hours.

| | | |
|----|--|----------|
| 24 | A. Can you be specific? "Facebook | |
| 25 | managers," I'm not -- not sure I understand that | 08:24:15 |

CONFIDENTIAL

1 term. 08:24:16

2 Q. Sure.

3 Let's -- Ime Archibong, for example. KP.

4 Eddie O'Neil.

5 The people on these various emails we've 08:24:24

6 looked at are people who discussed and evaluated

7 how to choose which apps and partners would

8 continue having access to publicly -- publicly

9 deprecated APIs, right?

10 MR. BLUME: Objection. Form. 08:24:39

11 THE DEPONENT: We've seen a number of

12 email threads and documents where a number of

13 Facebook employees are discussing whether or not to

14 offer extensions or exemptions to the changes and

15 how that might be framed. 08:24:56

16 Q. (By Mr. Loeser) And sometimes how that
17 might be framed was referred to by KP, for example,
18 as a format, right?

19 MR. BLUME: Objection. Form.

20 THE DEPONENT: I -- KP may refer to that. 08:25:15

21 You can bring that up in a document again, if you

22 want me to agree to it. But what KP referred to it

23 is what KP referred to it.

24 Q. (By Mr. Loeser) Okay. And sometimes it

25 was referred to as a framework; is that right? 08:25:27

Page 428

CONFIDENTIAL

1 MR. BLUME: Objection. Form. 08:25:30

2 THE DEPONENT: I don't know what you're
3 referring to with the -- with the phrase "it."

4 Q. (By Mr. Loeser) Oh. The discussion as
5 to which apps and partners would continue to have 08:25:38
6 access to deprecated permissions.

7 MR. BLUME: Objection. Form.

8 THE DEPONENT: So again, I think you're
9 mixing a few concepts up there. You're suggesting
10 there's a specific framework and then you're 08:25:51
11 talking about a number of -- there's a wide range
12 of discussions that happened on this topic
13 involving different people at different times.

14 Q. (By Mr. Loeser) Nonetheless, there was a
15 discussion of -- of a framework that could be or 08:26:04
16 would be developed to determine which apps and
17 partners would continue to have access to
18 deprecated permissions and which would not, right?

19 MR. BLUME: Objection. Form. And scope.

20 THE DEPONENT: What we've reviewed today 08:26:17
21 is there's a number of people attempting to put
22 together some suggestions or ways to think about
23 whether or not certain entities should or should
24 not be given additional access. But we have not
25 reviewed anything that necessarily ever got 08:26:42

Page 429

CONFIDENTIAL

1 implemented. 08:26:46

2 Q. (By Mr. Loeser) Okay. And it's fair to

3 say that deciding what apps and partners would

4 retain access to publicly deprecated permissions

5 was an important decision for Facebook, right? 08:26:53

6 MR. BLUME: Objection. Form.

7 THE DEPONENT: I think when we're making

8 changes to the platform, we wanted to be

9 considerate about how those changes would be

10 implemented and the impact they would have on users 08:27:12

11 and developers.

12 Q. (By Mr. Loeser) Losing access to

13 friend-sharing permissions, for example, could

14 damage relationships that Facebook have with app

15 develop- -- developers and strategic partners, 08:27:25

16 right?

17 MR. BLUME: Objection. Form.

18 THE DEPONENT: Any change to the Facebook

19 development --

20 MR. BLUME: Form and scope. 08:27:33

21 THE DEPONENT: Sorry. Can you repeat the

22 question again.

23 Q. (By Mr. Loeser) Losing access to

24 friend-sharing permissions, for example, could

25 damage relationships that Facebook had with app 08:27:50

Page 430

CONFIDENTIAL

1 developers and strategic partners, right? 08:27:53

2 MR. BLUME: Same objection.

3 THE DEPONENT: As a platform, when you

4 make changes of -- of any type, they can have

5 impact on the developers and users of your 08:28:06

6 platform, and this set of changes was -- was no

7 exception.

8 Q. (By Mr. Loeser) And granting exemptions

9 was also a big deal for Facebook because it

10 protected important relationships it had with 08:28:19

11 developers and partners, right?

12 MR. BLUME: Objection. Form.

13 THE DEPONENT: There were integrations

14 that were valuable to users and to developers and

15 to Facebook. And it was -- it was valuing 08:28:34

16 continuing those -- sorry.

17 Can you repeat the question again? I

18 want to make sure I'm answering.

19 Q. (By Mr. Loeser) And granting exemptions

20 was also a big deal for Facebook because it 08:28:57

21 protected important relationships it had with

22 developers and partners, right?

23 A. I don't feel I can represent like whether

24 or not this was important to Facebook.

25 I can -- I can say that when you're 08:29:13

Page 431

CONFIDENTIAL

1 making changes to your developer platform and 08:29:15
2 there's integrations which are existing and
3 valuable to people and developers and Facebook,
4 that some of those might -- you may want to
5 continue and changing -- but because of their value 08:29:36
6 to people, developers and Facebook.

7 Q. The Facebook management team was aware
8 that some developers and partners would retain
9 access to deprecated permissions, like friend
10 sharing, after the implementation of Graph API 08:29:51
11 version 2, right?

12 A. Can you repeat the question, please.

13 MR. LOESER: Rebecca, do you mind reading
14 the question back.

15 (Record read as follows: 08:30:00

16 "QUESTION: The Facebook management
17 team was aware that some developers
18 and partners would retain access to
19 deprecated permissions, like friend
20 sharing, after the implementation of 08:30:00
21 Graph API version 2, right?")

22 MR. BLUME: Objection. Form.

23 THE DEPONENT: The changes to the public
24 API surface area, there were -- there were -- there
25 were no plans, I'm aware of, to, at the time, 08:30:27

Page 432

CONFIDENTIAL

1 deprecate the device integrations or other 08:30:30

2 integration partners.

3 Q. (By Mr. Loeser) And Mr. Cross, Facebook

4 management was aware of that, right?

5 MR. BLUME: Objection. Form. 08:30:41

6 THE DEPONENT: I can't say if Facebook

7 management was aware. There's a number of threads

8 on this topic.

9 Q. (By Mr. Loeser) Was Mark Zuckerberg

10 aware of that? 08:30:54

11 MR. BLUME: Objection. Form.

12 THE DEPONENT: I don't know if

13 Mark Zuckerberg was aware of that.

14 MR. LOESER: Let's look at -- introduce a

15 new exhibit. 08:31:06

16 (Exhibit 342 was marked for

17 identification by the court reporter and is

18 attached hereto.)

19 MR. LOESER: We'll mark Exhibit 342.

20 Q. (By Mr. Loeser) This is an email from 08:31:30

21 Eddie O'Neil to Mark Zuckerberg with a cc to Mike

22 Vernal, Douglas Purdy and Ilya Sukhar, dated

23 January 27th, 2014, "Subject: platform model

24 changes."

25 Do you see that? 08:31:44

Page 433

CONFIDENTIAL

1 A. I see that. 08:31:45

2 Q. And who, of the recipients of this email,
3 was on the Facebook management team at this time?

4 A. Can you help me understand what you mean
5 by the "Facebook management team"? 08:31:58

6 Q. Sure.

7 There was the document earlier that was
8 the M Team, and I'm referring to the M Team.

9 Is that the management team?

10 A. Well, there's -- there's a thing called 08:32:09
11 the M Team, which is Mark's -- Mark's leadership
12 group.

13 Q. So -- so who -- who, on this list, would
14 be considered Facebook leadership?

15 MR. BLUME: Objection. Form. And scope. 08:32:23

16 THE DEPONENT: I mean, I think it's
17 reasonable to assume Mark would be considered
18 Facebook leadership. But I couldn't answer the
19 question as to which other people on the thread
20 were on the M Team at the time. 08:32:37

21 Q. (By Mr. Loeser) What was Eddie O'Neil's
22 position at the time?

23 A. Again, I don't want to give a canonical
24 answer, but my understanding is he was a product
25 manager on the Facebook platform team. 08:32:54

Page 434

CONFIDENTIAL

1 Q. And if you look at the first line of 08:32:58
2 Mr. O'Neil's email to Mark Zuckerberg, he states
3 "Hi Mark - attached are the slides we reviewed and
4 a list of key apps affected by the API
5 deprecations/privatizations." 08:33:10

6 Do you see that?

7 A. I see that.

8 Q. And do you see that he writes "To clarify
9 my perspective: I feel strongly that we should make
10 these changes - want to be sure we've considered 08:33:23
11 alternative viewpoints, but my opinion is solid.
12 We need to realign our relationship with developer
13 in order to put the ecosystem in a sustainable
14 place and to improve user trust."

15 Do you see that? 08:33:34

16 A. I do see that.

17 Q. So does this indicate to you, as
18 Facebook's corporate designee, that Mr. Zuckerberg
19 was made aware of the platform model changes that
20 would occur when the platform 3.0 was implemented? 08:33:46

21 MR. BLUME: Objection. Form. Scope.

22 THE DEPONENT: I -- it -- it would
23 indicate to me that Mark had received this email.
24 I don't know whether or not he was aware of it. It
25 doesn't mean he necessarily read the email. So I 08:34:07

Page 435

| | | |
|---|---|----------|
| 1 | couldn't answer on behalf of Mark. But it would | 08:34:10 |
| 2 | make sense that he was aware that these changes | |
| 3 | were being made. | |

4 Q. (By Mr. Loeser) Okay. So Mr. Cross,
5 the -- the changes that -- that occurred when the 08:34:45
6 platform -- the new platform was installed were
7 something that Facebook informed the developer
8 community of; is that right?

| | | |
|----|---|----------|
| 9 | A. We announced the changes to the Facebook | |
| 10 | developer platform at F8 on April the 30th, 2014. | 08:35:08 |

11 Q. And tell the jury, if you will, what the
12 F8 is?

13 A. F8 is a developer conference run by
14 Facebook.

| | | |
|----|-------------------------------------|----------|
| 15 | Q. And is it an important event for | 08:35:28 |
| 16 | Facebook? | |

17 MR. BLUME: Objection. Form.

18 THE DEPONENT: It's an event.

19 Q. (By Mr. Loeser) So it's like a birthday
20 party, or is it something that's significant for 08:35:44
21 Facebook?

22 MR. BLUME: Objection. Scope. And form.

23 THE DEPONENT: F8 is a little bit bigger
24 than a birthday party.

| | | |
|----|---|----------|
| 25 | Q. (By Mr. Loeser) Is it fair to describe | 08:35:53 |
|----|---|----------|

CONFIDENTIAL

1 it as a significant event for Facebook? 08:35:54

2 MR. BLUME: Objection. Scope.

3 THE DEPONENT: I -- I wouldn't want to --

4 it's -- it's an event. There are many events. I

5 don't think it necessarily needs to be pegged as 08:36:06

6 significant.

7 Q. (By Mr. Loeser) Is it something that

8 people who present at the event do some preparation

9 in advance or do they just wing it?

10 MR. BLUME: Objection. Form. Scope. 08:36:20

11 THE DEPONENT: Typically, when you speak

12 at F8, you've done a little prep.

13 Q. (By Mr. Loeser) And the reason for the

14 prep is so that you can speak accurately?

15 MR. BLUME: Objection. Form. 08:36:37

16 THE DEPONENT: So you can deliver -- in

17 general, preparation helps you deliver a good

18 presentation.

19 Q. (By Mr. Loeser) And is a good

20 presentation also a presentation that is accurate? 08:36:49

21 A. Again, I'm not going to offer a Facebook
22 answer to that.

23 In my personal capacity, when presenting,

24 I would generally like to be accurate.

25 MR. BLUME: Is this a good time for a 08:37:16

CONFIDENTIAL

1 break, Derek? We've been going about an hour. 08:37:17

2 MR. LOESER: Sure. Sure. Let's try and

3 keep it a little shorter than some of the other

4 ones. But if we actually can get back on in ten

5 minutes, that would be great. 08:37:28

6 We can go off the record.

7 THE VIDEOGRAPHER: Okay. We're off the

8 record. It's 8:37 p.m.

9 (Recess taken.)

10 THE VIDEOGRAPHER: We're back on the 08:37:34

11 record. It's 8:50 p.m.

12 Q. (By Mr. Loeser) Mr. Cross, you mentioned

13 the April 30th, 2018, F8 conference; is that right?

14 A. April the 30th, 2014.

15 Q. 2014. I'm sorry. 08:50:31

16 And -- and that is the F8 where Facebook

17 announced the changes that were being made to the

18 platform with the introduction of Graph API

19 version 2, right?

20 A. That's the event where Graph API 08:50:44

21 version 2 and the new login were -- were announced

22 publicly.

23 Q. And were you at the April 30th, 2014, F8?

24 A. I was at the event.

25 Q. And was -- was Ime Archibong at that 08:51:04

Page 438

CONFIDENTIAL

1 event? 08:51:06

2 A. I couldn't say for certain. I -- I
3 would -- he may -- he may well have been, but I
4 couldn't say for certain.

5 Q. And do you know -- and I'll just list the 08:51:17
6 names and you tell me if you know if they were
7 there.

8 Was Eddie O'Neil at that event?

9 A. Eddie O'Neil was there.

10 Q. And was Jackie Chang at that event? 08:51:25

11 A. I don't know if Jackie Chang was there.

12 Q. Was KP at that event?

13 A. I don't know for certain if KP was there.

14 Q. Now, the keynote at the F8 was -- was
15 delivered by Mark Zuckerberg; is that right? 08:51:41

16 A. That's correct.

17 Q. And was that normally what happened at
18 the F8?

19 A. Mark has historically given the keynote
20 at F8s. 08:51:59

21 Q. And -- and that's so he can deliver
22 important news or information about Facebook for
23 that year?

24 MR. BLUME: Objection. Form.

25 THE DEPONENT: Yes. So that Mark can 08:52:09

Page 439

CONFIDENTIAL

1 update our developer community on what he -- what 08:52:12
2 we're going to launch and what he thinks is coming
3 next.

4 Q. (By Mr. Loeser) We have a video clip of
5 that portion of Mr. Zuckerberg's keynote address 08:52:24
6 and we're going to play it. And then I'll have a
7 few follow-up questions for you about what he said.

8 Okay?

9 A. Okay.

10 (Video playing.) 08:52:34

11 Q. (By Mr. Loeser) Were you able to hear
12 that, Mr. Cross?

13 A. I could hear that, yeah.

14 Q. Okay. So during that keynote
15 presentation, Mr. Zuckerberg described the changes 08:53:50
16 that were going to be made with regard to the
17 sharing of friend information, in particular; is
18 that right?

19 A. He talked about how the -- the API for
20 most developers was going to change. 08:54:07

21 Q. And he -- he didn't actually use the
22 phrase "most developers," did he?

23 A. I don't recall exactly.

24 MR. LOESER: Well, we have a copy of the
25 transcript and we can mark this as the next 08:54:24

Page 440

CONFIDENTIAL

1 exhibit, which has previously been marked as 08:54:26
2 Exhibit 17.

3 Q. (By Mr. Loeser) And I'll represent to
4 you that this is a transcript of Mr. Zuckerberg's
5 April 30th, 2014, keynote address at the F8. 08:54:40

6 And if we go to the fifth page -- do you
7 see the paragraph in the middle, "And in the past,
8 when one of your friends logged into an app, in
9 this case Ilya, the app could ask him not only to
10 share his data but also data that his friends had 08:55:07
11 shared with him."

12 Do you see that?

13 A. I see that.

14 Q. And having just listened to the -- the
15 recording of the presentation, do those words look 08:55:14
16 familiar to you?

17 A. They do.

18 Q. And so what Mr. Zuckerberg said is, "So
19 now we're going to change this and we're going to
20 make it so that now everyone has to choose to share 08:55:28
21 their own data with an app themselves"; is that
22 right?

23 A. That's what he said.

24 Q. So -- and for that to occur, that would
25 mean that -- that no app would get access to data 08:55:41

Page 441

CONFIDENTIAL

1 about anyone other than the Facebook user using the 08:55:45
2 app, correct?

3 A. I'm not sure that is -- has to be true
4 for -- for this to make sense.

5 Q. Okay. So tell me what -- when -- when he 08:55:58
6 says so -- "So now we're going to change this and
7 we're going to make it so that now everyone has to
8 choose to share their own data with an" apps
9 themselves -- "with an app themselves," in that
10 statement, is there some indication that -- that 08:56:11
11 not everyone has to choose to share their own data
12 with an app themselves?

13 MR. BLUME: Objection. Form. Scope.

14 THE DEPONENT: So -- sorry. Ask the
15 question again, please. 08:56:29

16 Q. (By Mr. Loeser) Mr. Zuckerberg stated
17 "So now we're going to change this and we're going
18 to make it so that now everyone has to choose to
19 share their own data with an app themselves,"
20 right? 08:56:38

21 A. That's what he said.

22 Q. Okay. He didn't say "We're going to make
23 it so that now some people have to choose to share
24 their own data with an app themselves," did he?

25 A. He didn't say that. Assuming this is his 08:56:51

CONFIDENTIAL

1 transcript. 08:56:57

2 Q. Okay. And now, Mr. Cross, it's true, is
3 it not, that after the transition to Graph API
4 version 2 -- strike that.

5 It is not true that after the transition 08:57:17
6 to Graph API version 2, "No app would get access to
7 data about anyone other than the Facebook user
8 using the app", correct?

9 A. Mark is speaking here to the broad
10 develop community and referring to the generally 08:57:34
11 publicly available Facebook developer platform.
12 And over time, we transitioned all applications
13 to -- we transitioned most applications to
14 version 2 and ultimately deprecated the friend
15 permissions for everyone. 08:58:00

16 Q. Okay. Mr. Cross, show me where in this
17 statement that Mr. Zuckerberg made at the --
18 April 30th, 2018, he suggests that -- that some
19 people would have to choose to share their own data
20 but others would not have that ability. 08:58:13

21 A. Well, so an application that had been
22 upgraded or migrated to version 2, it was part of
23 the public API surface area. The behavior is the
24 same for all users.

25 Q. Yeah. Mr. Cross, let's go back to the 08:58:32

Page 443

CONFIDENTIAL

1 transcript because I really -- I'm trying to 08:58:33
2 understand what words were said and what were not.
3 And when Mr. Zuckerberg said "So now
4 we're going to change this and we're going to make
5 it so that now everyone has to choose to share 08:58:44
6 their own data with an app themselves," that was
7 not a true statement, was it?
8 MR. BLUME: Objection. Form. And scope.
9 THE DEPONENT: So I -- I can't like give
10 the, you know -- like I can't be sure exactly what 08:59:01
11 Mark had in his head when he said this. Only he
12 can -- this is his transcript.
13 So what was the question again? Sorry.
14 MR. LOESER: If we could read the
15 question back, please, Rebecca. 08:59:28
16 (Court Reporter initiates discussion off
17 the record.)
18 MR. LOESER: I can -- I can restate the
19 question.
20 Q. (By Mr. Loeser) When Mr. Zuckerberg 09:00:03
21 stated at the F8, "So now we're going to change
22 this and we're going to make it so that now
23 everyone has to choose to share their own data with
24 an app themselves," that was not a true statement
25 at time, was it? 09:00:15

Page 444

CONFIDENTIAL

1 MR. BLUME: Objection. Form. And scope. 09:00:17

2 THE DEPONENT: That is -- that is true

3 for the public API surface area, once all apps had

4 been transitioned to API version 2 and the friend

5 permissions have been deprecated for everyone. 09:00:37

6 Q. (By Mr. Loeser) It was never the case,

7 Mr. Cross, that everyone was given the opportunity

8 to choose to share their own data with an app

9 themselves because of the exemptions that were made

10 to the deprecations of friend-sharing APIs; isn't 09:00:53

11 that right?

12 A. The friend permissions were deprecated

13 and removed for everybody over time. The migration

14 here is a process, and it took time. But as of

15 now, there are no friend permissions and that is 09:01:14

16 the case for everyone.

17 Q. And you're talking about as of now, as of

18 2022?

19 A. I am talking about as of now, as of 2022.

20 Q. So this was announced in 2014; is that 09:01:33

21 right?

22 A. He's making this announcement in 2014.

23 Q. Okay. So in 2015, it was not true that

24 everyone has to choose to share their own data with

25 an app themselves, right? 09:01:47

Page 445

CONFIDENTIAL

1 MR. BLUME: Objection. Form. And scope. 09:01:49

2 THE DEPONENT: The migration to -- from
3 API v1 to v2 took a long period of time. And
4 continued into 2016 -- into 2015, and continued on.

5 Q. (By Mr. Loeser) And so the answer to my 09:02:11
6 question is correct?

7 MR. BLUME: Objection. Form.

8 THE DEPONENT: Sorry. I'm not sure what
9 I'm agreeing to there.

10 Q. (By Mr. Loeser) My question is, in 2015, 09:02:25
11 it was not true that everyone had to choose to
12 share their own data with an app themselves, right?

13 MR. BLUME: Same objection.

14 THE DEPONENT: In 2015 -- in 2015, API
15 version 1 was still available to any application 09:02:41
16 that had been created before F8 2014.

17 Q. (By Mr. Loeser) Okay. And after the new
18 platform became operative in 2015, it was still not
19 true that everyone has to choose to share their own
20 data with an app themselves, right? 09:02:57

21 MR. BLUME: Objection. Form.

22 THE DEPONENT: The deprecation of API v1
23 and the friend permissions was a process that took
24 some time.

25 Q. (By Mr. Loeser) Okay. So can you answer 09:03:08

CONFIDENTIAL

1 my question? 09:03:10

2 A. Sorry. In -- repeat the question,
3 please.

4 Q. After the new platform became operative
5 in 2015, it was still not true that everyone has to 09:03:23
6 choose to share their own data with an app
7 themselves, right?

8 A. Well, the -- the -- after the new
9 platform version became operative, there was still
10 a migration process underway that took some more 09:03:42
11 time and that continued into -- into 2015.

12 Q. Okay. So can you answer my question,
13 please.

14 MR. BLUME: Objection. Form.

15 THE DEPONENT: So in API version 2, there 09:03:58
16 were -- in 2015, there were still apps in the
17 process of migrating from one to the other and that
18 process continued. And while that process
19 continued, then some applications had access to
20 friends information. 09:04:24

21 Q. (By Mr. Loeser) So the answer to my
22 question is correct?

23 MR. BLUME: Objection. Form.

24 THE DEPONENT: I feel like I've answered
25 the question. I'll restate my testimony again. 09:04:36

Page 447

CONFIDENTIAL

1 The migration from version 1 to version 2 09:04:38
2 took a period of time. And while that took place
3 there were some applications that retained the
4 ability to access friends information.

5 Q. (By Mr. Loeser) And because the 09:04:57
6 migration took, as you say, a long period of time,
7 it was not true that everyone could choose to share
8 data with an app themselves in 2015, after the new
9 platform was introduced, correct?

10 MR. BLUME: Objection. Form. Scope. 09:05:07

11 THE DEPONENT: As I've explained, the way
12 the platform migration worked is it took a period
13 of time and during that migration period some apps
14 had the ability to access friends information until
15 the friend permissions were finally removed for 09:05:24
16 everyone.

17 Q. (By Mr. Loeser) And, sir, I'm going to
18 ask you to answer my question again. And we can
19 read the question back. And I understand your
20 reference to the migration taking a long period of 09:05:35
21 time, but my question is very specific.

22 Because the migration took a long period
23 of time, as you say, it was not true that everyone
24 could choose to share data with an app themselves
25 in 2015, after the platform became operative, 09:05:48

Page 448

CONFIDENTIAL

1 correct? 09:05:52

2 MR. BLUME: Objection. Form.

3 THE DEPONENT: The platform -- the

4 platform became operative for -- for new

5 applications in 2014, so -- I mean, again, in 2015, 09:05:57

6 while the process of migration was still underway,

7 apps -- some apps retained the ability to access

8 friends information until the friend permissions

9 were ultimately deprecated.

10 Q. (By Mr. Loeser) And that was also true 09:06:23

11 in 2016, correct?

12 A. In 2016, there were still some

13 applications that had access to friends

14 information.

15 Q. And that was also true in 2017, correct? 09:06:33

16 A. In 2017, there were some integrations

17 that still retained access to friends information.

18 Q. And that is still true in 2017, correct?

19 A. In 2017, there were some applications

20 that had access to friends information due to being 09:06:55

21 integration partners.

22 Q. And that's -- that was true in 2018 also,

23 correct?

24 A. The friend permissions were ultimately

25 deprecated for all apps for all users in 2018. 09:07:08

Page 449

CONFIDENTIAL

1 Q. And in 2019, there were still some apps 09:07:14
2 that emitted friend data; isn't that right?

3 A. The friend permissions were deprecated
4 for -- removed for everybody, for all apps, in
5 March 2018. 09:07:25

6 Q. Right. But as we talked about on Monday,
7 there are other APIs that emit friend data even
8 though they're not friend permissions; isn't that
9 right?

10 MR. BLUME: Objection. Form. 09:07:36

11 THE DEPONENT: Can you remind me what you
12 define as friends data?

13 Q. (By Mr. Loeser) Well, we went through
14 this in some detail on Monday. But the post APIs
15 and the groups APIs and the events APIs and the 09:07:51
16 tagable friends APIs, the inviteable friends API,
17 those were all APIs that you testified did emit
18 friend data, right?

19 A. Those APIs -- some of them emitted very
20 limited amounts of information. But those APIs, as 09:08:08
21 I understand it, were still operational in 2018.

22 Q. And those were still operational in 2019,
23 too, right?

24 A. I -- many updates to the platform
25 happened in 2018, including a new API version which 09:08:27

Page 450

CONFIDENTIAL

1 dramatically limited the amount of information 09:08:31

2 available to applications even further.

3 Q. Nonetheless, there were still apps

4 emitting friend data in 2019, right?

5 A. In 20-- in 2019, there were some apps 09:08:44

6 discovered that still had access to friends

7 information.

8 Q. And that's true in 2020, as well, right?

9 A. My understanding is that all of the apps

10 that were discovered that had access to friends 09:09:03

11 information were removed in 2018.

12 Q. Except for the apps that you talked about

13 on Monday that weren't friends permissions but

14 emitted friend data, right?

15 A. I'm not sure exactly the state of the 09:09:27

16 APIs in 2019.

17 Q. And what about in 2020?

18 MR. BLUME: Objection. Form.

19 THE DEPONENT: Again, the APIs, as they

20 exist in 2019 and -- and 2020, I count -- I do not 09:09:41

21 know exactly the details of how those APIs

22 function.

23 Q. (By Mr. Loeser) So you can't testify

24 today as to whether Facebook continues to allow

25 apps to emit friend data in 2020? 09:09:58

Page 451

CONFIDENTIAL

1 MR. BLUME: Objection. Form. 09:10:03

2 THE DEPONENT: The friend permissions
3 were deprecated in 2018. And the API was updated
4 also in 2018 to significantly reduce the amount of
5 information that was available to applications. 09:10:16

6 And there was -- those were major steps forwards
7 [sic] in reducing the amount of data available to
8 apps.

9 Q. (By Mr. Loeser) Understood.

10 But as you said, in 2019, there were 09:10:31
11 still APIs that emitted some friend data, right?

12 A. I'm not confident in understanding how
13 the API worked in 2019.

14 Q. So can you, as Facebook's corporate
15 designee today, testify as to whether there are 09:10:51
16 APIs in use in 2019, 2020, 2021 and 2022 that still
17 emit some friend data?

18 MR. BLUME: Objection. Form.

19 THE DEPONENT: I do not know how -- in
20 detail how the APIs work today or worked in 2018, 09:11:09
21 '19 and '20.

22 Q. (By Mr. Loeser) So the answer to my
23 question is no, as the corporate designee, you
24 cannot testify and provide an answer to that
25 question? 09:11:24

Page 452

CONFIDENTIAL

1 MR. BLUME: Objection. Form. 09:11:26

2 THE DEPONENT: I can't say for certain
3 how the API functions today or in the last three
4 years.

5 Q. (By Mr. Loeser) But on Monday you were 09:11:34
6 able to testify about the friend data that these
7 other APIs that we talked about did emit some
8 friend information; is this right?

9 A. Which other APIs are you referring to?

10 I think that probably matters. 09:11:46

11 Q. The ones that we just went through; the
12 groups, events, posts, tagable friends, inviteable
13 friends, the whole list.

14 A. Those APIs were deprecated in the past.

15 I think most of those APIs were deprecated in 2018. 09:12:03

16 Q. You think. But who -- who knows for
17 sure?

18 A. The tagable friends and the inviteable
19 friends API were certainly deprecated in 2018, and
20 these APIs -- the -- the change log of which APIs 09:12:17
21 were deprecated and when is available on Facebook's
22 developer website.

23 I just haven't memorized all of that
24 information for you.

25 Q. So perhaps on Monday you could testify as 09:12:29

Page 453

CONFIDENTIAL

1 to when those other APIs that emitted friend data 09:12:31
2 were deprecated, if they were.

3 Is that something you can investigate?

4 MR. BLUME: Objection. Form.

5 Noted. 09:12:48

6 Q. (By Mr. Loeser) Now, Mr. Cross, it is
7 not true that after the transition to Graph API
8 version 2 no app would get access to data about
9 anyone other than the Facebook user using the app,
10 right? 09:13:01

11 MR. BLUME: Objection. Form.

12 THE DEPONENT: Sorry. Can you repeat --
13 can you repeat the question.

14 MR. LOESER: Sure. If we could read it
15 back, please. 09:13:06

16 THE COURT REPORTER: Wait. Could you
17 slow down a little bit, Mr. Loeser.

18 MR. LOESER: Sure. I'm sorry. And I can
19 just read the question again.

20 THE COURT REPORTER: Thank you. 09:13:06

21 Q. (By Mr. Loeser) Mr. Cross, it is not
22 true that after the transition to Graph API
23 version 2, no app would get access to data about
24 anyone other than the Facebook user using the app,
25 correct? 09:13:28

CONFIDENTIAL

1 MR. BLUME: Objection. Form. 09:13:31

2 THE DEPONENT: The way the APIs
3 functioned was that the -- even after the
4 deprecation of the -- the friend permissions, there
5 were still cases where an app would emit some 09:13:41
6 information about people who had interacted with
7 the content that the app user had posted.

8 Q. (By Mr. Loeser) So the answer to my
9 question is, correct, it is not true that no app
10 would get access to data about anyone other than 09:14:01
11 the Facebook user using the app after Graph AP one
12 [sic] version 2 was implemented?

13 A. Graph API version 2 removed the friend
14 permissions from the public surface area of the
15 API. But there were no guarantees made about other 09:14:16
16 information that the API would emit.

17 Q. And Mr. Zuckerberg didn't say in his
18 keynote address that they were deprecating friend
19 permissions for most apps, but they were going to
20 continue to allow access to those apps after 09:14:34
21 Graph -- Graph API version 2 was implemented for
22 certain partners chosen by Facebook, right?

23 That's not in his keynote address, is it?

24 MR. BLUME: Objection. Form. Scope.

25 THE DEPONENT: You have the transcript of 09:14:51

Page 455

CONFIDENTIAL

1 what he said in the keynote. 09:14:52

2 Q. (By Mr. Loeser) And -- and when I played
3 the portion of the transcript, you didn't hear him
4 say those words; is that right?

5 MR. BLUME: Objection. Form. Scope. 09:15:01

6 THE DEPONENT: I didn't hear Mark say the
7 words that you just said.

8 Q. (By Mr. Loeser) And at the time that
9 Mr. Zuckerberg made these statements, Facebook knew
10 that certain app developers and partners with, 09:15:10
11 quote, nonstandard platform agreements, unquote,
12 would be given continued access to friend data
13 after Graph AP one -- API version 2 was
14 implemented, right?

15 MR. BLUME: Objection. Asked and 09:15:23
16 answered.

17 THE DEPONENT: The -- at the time there
18 were -- the -- there were a number of integrations
19 that existed through -- device integrations and
20 integration partners. And there was, as I 09:15:38
21 understand it, no plans to deprecate those.

22 Mark is speaking to a public developer
23 audience and referring to the public developer
24 platform.

25 Q. (By Mr. Loeser) And just to be clear, 09:15:55

Page 456

CONFIDENTIAL

1 Mr. Zuckerberg knew that certain app developers and 09:15:55
2 partners with nonstandard platform agreements would
3 be given continued -- continued access to friend
4 data after Graph API version 2 was implemented,
5 right? 09:16:09

6 MR. BLUME: Objection. Asked and
7 answered. Form and scope.

8 THE DEPONENT: Sorry, Rob. Can you
9 say --

10 Q. (By Mr. Loeser) Sure. 09:16:18

11 MR. BLUME: Sure. I objected that --
12 that it was asked and answered. And I objected to
13 form and scope.

14 Q. (By Mr. Loeser) At the time
15 Mr. Zuckerberg gave his keynote address on 09:16:25
16 April 30th, 2014, at the F8, Facebook knew that
17 certain app developers and partners with
18 nonstandard platform agreements would be given
19 continued access to friend data after Graph AP one
20 version 2 was implemented, right? 09:16:42

21 MR. BLUME: Objection. Scope. Form.

22 THE DEPONENT: Sorry. Say that again,
23 Rob.

24 MR. BLUME: Yeah. Objection to form.

25 THE DEPONENT: There were apps still on 09:17:00

Page 457

CONFIDENTIAL

1 whitelists and there were no plans that I was aware 09:17:04
2 of to -- to deprecate the integration partners that
3 were already in existence.

4 Q. (By Mr. Loeser) So the answer to my
5 question is "yes"? 09:17:22

6 MR. BLUME: Objection. Form.

7 THE DEPONENT: Sorry. I feel
8 like I've -- I feel like I've answered the
9 question.

10 I don't -- I don't know what 09:17:31
11 Mark Zuckerberg knew. He was aware that the -- he
12 would have been aware. And we've seen the email
13 sent to him, that made him aware of what the
14 changes were. But I don't know what he would have
15 known about the plans to continue with integration 09:17:49
16 partners and so on.

17 Q. (By Mr. Loeser) And as Facebook's
18 corporate -- sorry. Go ahead.

19 A. Sorry. Go ahead.

20 Q. As Facebook's corporate designee today, 09:18:02
21 tell the jury -- isn't it true that Facebook knew
22 that certain app developers and partners with
23 nonstandard platform agreements would be given
24 continued access to user friends data after
25 Graph API version 2 was implemented? 09:18:19

Page 458

CONFIDENTIAL

1 MR. BLUME: Objection. Form. 09:18:21

2 THE DEPONENT: The changes announced at

3 F8 2014 reflected major changes to the Facebook

4 developer platform for most apps and most

5 developers a significant change to the way the 09:18:37

6 platform worked.

7 Facebook had relationships with entities

8 that built integrations into devices, mobile phones

9 and operating systems that provided great value to

10 users and those were planned to continue. 09:18:59

11 Q. (By Mr. Loeser) And Mr. Cross, I'd

12 appreciate it if you could answer the question.

13 I've asked you a yes-or-no question about what

14 Facebook knew. And I can have the question read

15 back, if you want. But I would like you to answer 09:19:14

16 the question I asked.

17 And that question is, as Facebook's

18 corporate designee today, tell the jury, isn't it

19 true that Facebook knew that certain app developers

20 and partner with nonstandard platform agreements 09:19:26

21 would be given continued access to user friend data

22 after Graph API version 2 was implemented?

23 MR. BLUME: Objection. Form.

24 THE DEPONENT: There were -- it was -- it

25 was expected that, as with many cases and many 09:19:47

Page 459

CONFIDENTIAL

1 companies, that there would be experiences that we 09:19:54
2 wanted certain developers to build that would not
3 be possible via the standard public platform, and
4 we wanted those integrations to -- to continue
5 providing value to users, developers and Facebook. 09:20:11

6 Q. (By Mr. Loeser) And I appreciate that
7 explanation, but that was not the question I asked
8 you.

9 I'm asking you about what Facebook knew.
10 And I would like you to answer my question about 09:20:21
11 what Facebook knew at the time Mr. Zuckerberg made
12 his statements at the F8.

13 Would you like me to read the question
14 again?

15 A. Yes. Please read the question again. 09:20:34

16 Q. As Facebook's corporate designee, tell
17 the jury, isn't it true that Facebook knew that
18 certain app developers and partners with
19 nonstandard platform agreements would be given
20 continued access to user friend data after 09:21:04
21 Graph API version 2 was implemented?

22 A. Facebook had agreements with certain
23 developers that allowed them to build experiences
24 that had continued access to friend information for
25 a period of time and that was planned to continue. 09:21:31

Page 460

CONFIDENTIAL

1 Q. So the answer to my question is, yes, at 09:21:38
2 the time Mr. Zuckerberg made his statements,
3 Facebook knew that certain partners would continue
4 having access to friend data after Graph API
5 version 2 was implemented, correct? 09:21:52

6 MR. BLUME: Objection. Form.

7 THE DEPONENT: Certain appli- -- sorry.
8 Say again, Rob.

9 MR. BLUME: I objected to the form of the
10 question. 09:22:03

11 THE DEPONENT: And I feel like I'm
12 answering your question -- I feel like I've
13 answered your question a few times now.

14 SPECIAL MASTER GARRIE: No. Answer the
15 question yes or no. He's asking you a yes-or-no 09:22:10
16 question.

17 It's not that complicated. He's saying,
18 here the question, as a corporate designee, is the
19 answer yes or no. If you can't answer it as yes or
20 no, state such. 09:22:23

21 THE DEPONENT: I think I'm confused by
22 like what -- what does he mean by "Facebook knew"?

23 SPECIAL MASTER GARRIE: Counsel.

24 MR. LOESER: Mr. Cross, you're testifying
25 on behalf of Facebook. So I'm asking you what 09:22:38

CONFIDENTIAL

1 Facebook knew. So what Facebook employees informed 09:22:43

2 management and what management knew.

3 THE DEPONENT: There were people inside

4 the company that knew that --

5 SPECIAL MASTER GARRIE: He gave the 09:23:00

6 explanation of "knew." So the question is -- he

7 asked you a question. He's told you what "knew"

8 means.

9 Is the answer yes or no, or you don't

10 know. But you can answer it. 09:23:08

11 THE DEPONENT: I mean, I -- I -- I don't

12 know what "did Facebook knew" means, right. Did --

13 did -- how did the -- the -- the company know.

14 SPECIAL MASTER GARRIE: Well, you're

15 representing the company today as a designee of the 09:23:22

16 company.

17 THE DEPONENT: Right.

18 SPECIAL MASTER GARRIE: Did the company

19 have knowledge -- Counsel Loeser is asking did

20 Facebook itself have knowledge or individuals 09:23:31

21 therein have knowledge.

22 I think its confusion is around what you

23 mean by "Facebook knew." So maybe you can explain

24 to him, if that's not clear.

25 Q. (By Mr. Loeser) Facebook operates 09:23:44

Page 462

CONFIDENTIAL

1 through its employees, right? 09:23:46

2 A. Facebook has employees, yes.

3 Q. And employees are assigned certain
4 responsibilities as employees?

5 A. Employees tend to have job titles. 09:24:01

6 Q. Okay. And some employees were
7 responsible for determining which apps and partners
8 would continue to have access to friend data after
9 Graph AP one version 2 was implemented, right?

10 A. There were people working on the platform 09:24:16
11 partnership team who were responsible for the
12 device integration partners and the integration
13 partners.

14 Q. And the -- the knowledge that they
15 developed was communicated to people with 09:24:28
16 management level authority; isn't that right?

17 MR. BLUME: Objection. Form.

18 THE DEPONENT: There are emails with
19 conversations on about what was going to happen and
20 what could happen. And there were various levels 09:24:44
21 of management on these email threads.

22 Q. (By Mr. Loeser) And we talked about some
23 of those people. Eddie O'Neil, for example. KP,
24 for example.

25 Those were people who were aware of which 09:24:56

CONFIDENTIAL

1 apps and partners would continue to have access to 09:24:58
2 deprecated permissions after Graph API one -- API
3 version 2 was implemented, right?

4 A. The integration -- so they were aware of
5 the integration partners. And -- 09:25:13

6 SPECIAL MASTER GARRIE: The answer is
7 yes. We looked at the emails. You can just answer
8 the question asked. We all looked at the emails.

9 THE DEPONENT: Yes, we looked at emails.

10 SPECIAL MASTER GARRIE: So they knew -- 09:25:23

11 Q. (By Mr. Loeser) And we looked at an
12 email --

13 SPECIAL MASTER GARRIE: -- right?

14 Keep going, Counsel.

15 Q. (By Mr. Loeser) We looked at an email as 09:25:30
16 well in which Eddie O'Neil communicated with
17 Mark Zuckerberg directly on this topic; is that
18 right?

19 A. We looked at an email that Eddie sent to
20 Mark which talked about the changes. But that 09:25:39
21 email didn't contain anything about apps that would
22 continue to have access.

23 Q. It refers to the privatization of APIs,
24 right?

25 A. That email does use the term 09:25:53

CONFIDENTIAL

1 "privatization." 09:25:55

2 Q. And that was a term used to describe
3 certain partners that would continue to have access
4 to information that was otherwise deprecated on the
5 new platform, right? 09:26:05

6 A. Privatization could be used to suggest an
7 API that was no longer available to public
8 developers.

9 Q. So Mr. Cross, in light of all of the
10 materials we went through that show discussion of 09:26:19
11 which partners would continue to have access to
12 friends data after the implementation of Graph API
13 version 2, it is true, is it not, that Facebook
14 knew that certain apps and partners would continue
15 to have access to friend data after the 09:26:35
16 implementation of Graph API version 2, correct?

17 MR. BLUME: Objection. Form.

18 THE DEPONENT: There were people at
19 Facebook who knew that there would be apps that
20 continued to have access -- to some apps that had 09:26:53
21 continued access to some information about friends
22 after the public surface area apps had been
23 migrated to API version 2.

24 Q. (By Mr. Loeser) And Facebook knew that
25 some sensitive and strategic partners would be 09:27:09

Page 465

CONFIDENTIAL

1 given continued access to user friend information 09:27:12
2 after Graph API -- after Graph API version 2 was
3 implemented, correct?

4 MR. BLUME: Objection. Form and scope.

5 THE DEPONENT: There were a number of 09:27:24
6 integration partners and device integrations, and
7 they were going to continue to have access to
8 friend information in order to build Facebook
9 replacement clients and other experiences after API
10 version 2 had been adopted by the public developer 09:27:44
11 platform.

12 Q. (By Mr. Loeser) And Facebook knew that
13 at the time that Mr. Zuckerberg made his comments
14 about the deprecation of friend permissions at the
15 April 30th, 2014, F8, right? 09:27:59

16 THE DEPONENT: Sorry, Rob. Did you say
17 something?

18 MR. BLUME: Objection to form.

19 THE DEPONENT: In April 2014, there were
20 no plans to deprecate the device integration or 09:28:14
21 integration partners that were already in
22 existence.

23 Q. (By Mr. Loeser) And Facebook knew that
24 at the time Mr. Zuckerberg made his statements,
25 correct? 09:28:26

Page 466

A. The people in the platform partnerships team did not have plans to deprecate the integration partners or partner inte- -- or device integrations that already existed.

8 A. So in -- when the announcements were made
9 in 2014, the partnerships team had no plans to
10 deprecate, as I'm aware, the device integration or 09:28:55
11 integration partnerships that existed to date.

16 And I would like you answer the question
17 about what Facebook knew at the time Mr. Zuckerberg
18 made those statements. And we went through a few
19 minutes of explaining what I meant by what Facebook
20 knew, so there's no confusion about that now. So 09:29:17
21 if you could please answer my question.

CONFIDENTIAL

1 implemented, correct? 09:29:36

2 MR. BLUME: Objection. Form and scope.

3 SPECIAL MASTER GARRIE: Answer the

4 question.

5 Sorry. Go ahead, Counsel Blume. 09:29:39

6 MR. BLUME: I'm sorry. Objection to form

7 and scope to that question.

8 SPECIAL MASTER GARRIE: Noted for the

9 record. Overruled.

10 Answer the question. 09:29:47

11 THE DEPONENT: There were partners --

12 SPECIAL MASTER GARRIE: "No," or

13 "Correct," or "I don't know." Those are your

14 choices. Or "I cannot answer the question as

15 asked." However you want to say it, those are your 09:30:00

16 choices.

17 THE DEPONENT: I cannot answer the

18 question as asked because of the -- the definition

19 used in it around sensitive and strategic, which is

20 not established or defined. 09:30:14

21 SPECIAL MASTER GARRIE: Okay. Fair

22 enough.

23 There you go, Counselor.

24 Q. (By Mr. Loeser) And Facebook knew, at

25 the time Mr. Zuckerberg made -- gave his keynote 09:30:27

Page 468

CONFIDENTIAL

1 address at the April 30th, 2014, F8, that app 09:30:32
2 developers and partners with private APIs would be
3 given continued access to user friend data after
4 Graph API version 2 was implemented, correct?

5 A. Can you ask the top of that question 09:30:49
6 again. It was quite a long one.

7 Q. Mr. Cross, Facebook knew that app
8 developers and partners with private APIs would be
9 given continued access to friend user data after
10 Graph API version 2 was implemented, correct? 09:31:05

11 MR. BLUME: Objection. Form.

12 THE DEPONENT: Facebook knew that there
13 were integration partners and device integrations
14 that would continue to have access to friends
15 information after the public API surface area had 09:31:20
16 been migrated to version 2.

17 Q. (By Mr. Loeser) Mr. Zuckerberg said
18 "we're going to make it so that now everyone has to
19 choose to share their own data with an app
20 themselves" right? 09:31:34

21 A. You're reading from his transcript. That
22 seems to be what he said.

23 Q. And I'm -- I'm going to try and ask this
24 question really clearly so you can answer very
25 clearly. And this is a question for you that I 09:31:47

Page 469

CONFIDENTIAL

1 would like you to explain to the jury. Okay. 09:31:50

2 Considering all the apps and partners

3 that would continue to have access to user friend

4 data after Graph API version 2 was implemented,

5 Facebook knew that Mr. Zuckerberg's statement that 09:32:03

6 "we're going to make it so that now everyone has to

7 choose to share their own data with an app

8 themselves" was an untrue statement, correct?

9 MR. BLUME: Objection to scope. Form.

10 Asked and answered. 09:32:18

11 THE DEPONENT: I -- I -- Mark is talking

12 about the public surface area of the platform, and

13 over time this statement that he made about that

14 became true. The friend permissions were

15 deprecated for all apps, for all people, in 09:32:37

16 March 2018.

17 Q. (By Mr. Loeser) And Mr. Zuckerberg did

18 not say in his statement that over the course of

19 several years we're going to make it so that

20 everyone has to choose to share their own data with 09:32:54

21 an app themselves, right?

22 MR. BLUME: Objection. Form.

23 THE DEPONENT: We've looked at the

24 transcript of what Mark said.

25 Q. (By Mr. Loeser) And he didn't say that, 09:33:04

Page 470

CONFIDENTIAL

1 did he? 09:33:06

2 MR. BLUME: Objection. Form.

3 THE DEPONENT: He didn't say the words

4 that you just said.

5 MR. LOESER: We're going to go to a new 09:33:11

6 exhibit.

7 MR. BLUME: Is this a good time for a

8 break, Derek?

9 MR. LOESER: You know, if we could

10 just -- if it's okay, I wouldn't mind powering 09:33:58

11 through, if it's okay with Mr. Cross, because I

12 don't have a lot of time on -- on my end. And I'd

13 like to try and cover as much as we can this

14 evening. But really, it's up to Mr. Cross, if he

15 needs a couple minutes. 09:34:09

16 THE DEPONENT: Can I take a three-minute

17 quick bio break?

18 MR. LOESER: Sure. No problem. Make it

19 five.

20 THE DEPONENT: Thank you. 09:34:17

21 MR. LOESER: Yeah.

22 THE VIDEOGRAPHER: Okay. We're off the

23 record. It's 9:34 p.m.

24 (Recess taken.)

25 THE VIDEOGRAPHER: We're back on the 09:34:22

Page 471

CONFIDENTIAL

1 record. It's 9:47 p.m. 09:47:24

2 MR. LOESER: Before we took a break,

3 Mr. Cross, I believe we introduced the next

4 exhibit, which we'll put up on the screen.

5 (Exhibit 343 was marked for 09:47:36

6 identification by the court reporter and is

7 attached hereto.)

8 MR. LOESER: And this is an email string,

9 a fairly long one. The top email is from

10 Steven Elia, dated 3/24/2016. "Subject: Re: 09:47:48

11 Changing App Settings // Friend Permissions."

12 Q. (By Mr. Loeser) Do you see that?

13 A. I do.

14 Can I -- can I make sure I've got my -- a

15 copy here so I can -- I have it. Okay. I have it. 09:48:09

16 Q. And -- and there's a number of

17 recipients --

18 A. Sorry. I -- I don't -- 343.

19 My 343 is a -- is the keynote video from

20 Mark. 09:48:22

21 Q. So let's see what number this is. This

22 would be the next exhibit after --

23 A. I just want to make sure --

24 343. Okay. Yeah, I have it. I have it.

25 Q. Okay. And so we're looking at the -- the 09:48:37

CONFIDENTIAL

1 "To" line and there's -- it's from Steven Elia. 09:48:39

2 Who is Steven Elia?

3 A. Steven Elia is an engineering manager on
4 the Facebook platform team.

5 Q. Okay. And one of the recipients -- 09:48:50

6 there's some names on here like Eddie O'Neil and KP
7 that were -- that we've already talked about.

8 There's another person on here, Johanna Peace.

9 Do you know who she is?

10 A. Johanna Peace was somebody who worked in 09:49:02
11 the communications department.

12 Q. And so if we go to the end of this
13 string, it is an email from Johanna Peace to

14 Eddie O'Neil, Monica Tsang, Amee Kamdar,
15 Jonathan Coleman, Steve Elia and Shirine Sajjadi, 09:49:16
16 dated March 24th, 2016.

17 Do you see that?

18 A. That's right.

19 Q. And Ms. Peace says, at the beginning of
20 her email, "Hi all, You may have seen this article 09:49:33

21 in US Today which takes a pretty negative stance
22 toward Login, partly based on a wrong assumption
23 from looking at App Settings that friends can share
24 all your info with apps."

25 Do you see that? 09:49:47

Page 473

CONFIDENTIAL

1 A. I see that. 09:49:48

2 Q. And at the time was it, in fact,
3 incorrect that friends could share all your info
4 with apps?

5 MR. BLUME: Objection. Form. 09:49:59

6 THE DEPONENT: Sorry. Was it incorrect
7 that friends -- like -- I just want to get that
8 double negative right.

9 Q. (By Mr. Loeser) Well, let me -- let me
10 clean that up. 09:50:11

11 So as we've spent a lot of time talking
12 about, there were a number of apps and partners
13 that were whitelisted and continued to have access
14 to friend data as of March 24th, 2016; is that
15 right? 09:50:23

16 A. There were apps that still had access
17 to -- to friend permissions and some friend
18 information in 2016, yes.

19 Q. Okay. So -- so at the time that this was
20 written, there were -- friends could share all of 09:50:39
21 their friends info with some apps, right?

22 A. There were some apps that still had
23 access to the friend permissions and APIs that
24 allowed the apps to access some friend information.

25 Q. Okay. And then in the second paragraph 09:50:57

Page 474

CONFIDENTIAL

1 of her email, she writes "Matt (copied) has been 09:51:00
2 working to push back against US Today's negative
3 claims and we've been emphasizing that friends
4 cannot actually share all your info with apps, but
5 the editors are having a hard time believing us, 09:51:13
6 since they noticed that App Settings appear to
7 contradict this."

8 Do you see that?

9 A. I see that.

10 Q. And she then writes "Given that this has 09:51:28
11 been a persistent issue confusing press and people,
12 I wanted to raise a few questions."

13 Do you see that?

14 A. I see that.

15 Q. And in her second paragraph below that 09:51:38
16 she writes, "In the meantime, Matt and I are
17 looking for a way to explain to USAT why the App
18 Settings appear this way, so I wanted to see what"
19 the "group is comfortable saying."

20 And I want you to look at and could you 09:51:54
21 read the next sentence that she writes.

22 A. She says "I know we have not been
23 publicly forthcoming that we have whitelisted
24 certain apps."

25 Q. And so at the time was it true that 09:52:06

Page 475

CONFIDENTIAL

1 Facebook had not been publicly forthcoming with the 09:52:08
2 fact that it had whitelisted certain apps?

3 MR. BLUME: Objection. Form and scope.

4 THE DEPONENT: It -- I can't answer -- I
5 can't answer what Facebook -- all of Facebook's 09:52:22
6 statements were about that. It's hard for me to
7 answer that question.

8 But at the time there were still
9 applications that -- that had access to some friend
10 information. 09:52:36

11 Q. (By Mr. Loeser) And that hadn't been
12 communicated publicly; is that right?

13 MR. BLUME: Objection. Form. Scope.

14 THE DEPONENT: I don't -- I -- I don't
15 know if there had been -- if there had been 09:52:45
16 communications about that or -- or not.

17 Q. (By Mr. Loeser) And then she writes "But
18 could we say something like: 'Only a few apps have
19 access to this information, for example, to provide
20 a Facebook experience on platforms where there is 09:52:57
21 no Facebook app.' I believe that's one of a few
22 reasons apps are whitelisted, but can this group
23 let me know thoughts / additional context?"

24 Do you see that?

25 A. I do see that. 09:53:11

Page 476

CONFIDENTIAL

1 Q. And if we move up the string to an email 09:53:12
2 from Reagan Williams to Eddie O'Neil and
3 Johanna Peace, among others -- Johanna Peace -- she
4 writes on March 24th, 2016, "I found there are
5 approx 80 apps still accessing v1.0 of the API, 09:53:40
6 with the largest bulk of them being from phone
7 manufacturers & Apple, both of which we are under
8 contract to continue supporting. Outside of these
9 apps, nobody appears to have accessed v1.0 friends
10 data edges in the last 30 days." 09:53:52

11 Do you see that?

12 A. I do see that.

13 Q. And then she also writes "However, I did
14 uncover a few apps that were not part of our
15 original Capability whitelists, but still 09:54:01
16 maintained access to v1.0 (such as: Socialist), but
17 I've confirmed" that "these apps are only accessing
18 Page feeds and not friends data."

19 Do you see that?

20 A. I see that. 09:54:16

21 Q. And page feeds did communicate some
22 friends data; isn't that right?

23 MR. BLUME: Objection. Form.

24 THE DEPONENT: Page feeds allowed apps to
25 access the information about posts on a page, which 09:54:28

Page 477

CONFIDENTIAL

1 may have included the people who commented or liked 09:54:33
2 the posts on that page.

3 Q. (By Mr. Loeser) Okay. And then if we
4 move up the string a bit, Johanna Peace says, on
5 March 24, 2016, in her email to Steven Elia, 09:54:42
6 Reagan Williams, Eddie O'Neil and others, "Thanks
7 both. So given these findings, does the response I
8 shared below in #2 seem true/fair to share with a
9 reporter? 'Only a few apps have access to this
10 information, for example, to provide a Facebook 09:55:00
11 experience on platforms where there is no Facebook
12 app.'"

13 Do you see that?

14 A. I see that.

15 Q. And then if you move up the string above 09:55:11
16 that, KP says, on March 24th, 2016 -- why don't you
17 read what -- what KP said.

18 A. So what's there is, "In the spirit of
19 fairness," I would not say anything around the
20 lines that 'only a few apps have access to this 09:55:34
21 information.' Instead I would suggest that this
22 option under the App Settings is an artifact of
23 what used to be true and enforce our messaging that
24 apps can no longer access friend_*permissions."

25 Q. Now, this statement -- this messaging 09:55:49

Page 478

CONFIDENTIAL

1 that apps can no longer access friend_*permissions, 09:55:53
2 that wasn't actually true at the time that he wrote
3 that, right?

4 MR. BLUME: Objection. Form. And scope.

5 THE DEPONENT: In 2016, there were some 09:56:06
6 apps that still had access to -- to friends
7 information and friend permissions.

8 Q. (By Mr. Loeser) Okay. So this
9 statement, no apps can no longer access friend
10 permissions, is not a true statement, is it -- or 09:56:20
11 let me put it a different way.

12 This statements, no acts -- no -- this
13 statement that apps can no longer access friend
14 permissions is not an accurate statement; is that
15 right? 09:56:31

16 MR. BLUME: Objection. Form. Scope.

17 THE DEPONENT: In 2016, there were apps
18 that still had access to some friend permissions
19 and information.

20 Q. (By Mr. Loeser) Mr. Cross, I -- I'm 09:56:43
21 hoping to avoid a long time getting a yes or no to
22 a yes-or-no question here.

23 So if -- if we could read the question
24 back, and if you could answer the question yes or
25 no, I'd appreciate it. 09:56:54

Page 479

CONFIDENTIAL

1 SPECIAL MASTER GARRIE: Instructing the 09:57:00
2 witness to answer the question yes or no.

3 THE DEPONENT: Can you read the question
4 back for me, please.

5 (Record read as follows: 09:57:12
6 "QUESTION: this statements, no
7 acts -- no -- this statement that
8 apps can no longer access friend
9 permissions is not an accurate
10 statement; is that right?") 09:57:12

11 THE DEPONENT: Where -- where is the
12 statement -- where is the statement that -- sorry.

13 MR. LOESER: And I'm sorry, Rebecca, let
14 me -- I -- it's been a long day and I'm sure it's
15 no fun to try and recreate my speaking as quickly 09:57:38
16 as I am.

17 So let me ask the question again. And
18 Mr. Cross, if you could please answer it yes or
19 not, I'd appreciate it.

20 Q. (By Mr. Loeser) The question is, the 09:57:47
21 statement in the email from KP on March 24th, 2016,
22 that apps can no longer access friend permissions
23 is not an accurate statement, is it?

24 MR. BLUME: Objection. Form. Scope.

25 SPECIAL MASTER GARRIE: Yes or no. 09:58:08

CONFIDENTIAL

1 THE DEPONENT: There were some apps that 09:58:17
2 could access --

3 SPECIAL MASTER GARRIE: I'm instructing
4 the witness to answer the question yes or no.

5 MR. BLUME: Mr. Garrie, if there's no yes 09:58:26
6 or no, can he answer that way as well?

7 SPECIAL MASTER GARRIE: If he -- if he's
8 not able to answer the question, he can say "I'm
9 not able to answer the question" certainly. But
10 either "Yes," "No," or "I can't answer the 09:58:34
11 question."

12 Any time you can't answer a question, say
13 "I can't answer." But he's asking you yes or no,
14 so -- or you can't answer.

15 THE DEPONENT: It -- it doesn't make -- 09:59:00
16 it doesn't make a statement here about like all
17 apps or any apps or some apps. It just says apps.
18 And at this point, you know, the vast majority of
19 apps could no longer access friend permissions.

20 So it doesn't -- it doesn't -- the 09:59:14
21 statement isn't qualified enough for me to give a
22 yes-or-no answer.

23 SPECIAL MASTER GARRIE: Okay.

24 Q. (By Mr. Loeser) Mr. Cross -- sorry,
25 Special Master Garrie. 09:59:25

CONFIDENTIAL

1 SPECIAL MASTER GARRIE: No. Go ahead, 09:59:27

2 Counsel.

3 Q. (By Mr. Loeser) On March 14th, 2016, it
4 was not true that apps can no longer access friend
5 permissions, right? 09:59:38

6 MR. BLUME: Asked and answered. Scope.
7 And form.

8 THE DEPONENT: There were some apps in
9 2016 that could still access friend permissions.

10 Q. (By Mr. Loeser) And that is not what KP 10:00:01
11 was indicating Ms. Peace should report to
12 USA Today; is that right?

13 MR. BLUME: Objection. Form. Scope.

14 THE DEPONENT: I can't -- I can't confirm
15 what KP's statement of intent was here. This is 10:00:16
16 him writing not the -- this is him writing.

17 Q. (By Mr. Loeser) So Mr. Cross, he's
18 responding to an email in which Ms. Peace is asking
19 if she should say only a few apps have access to
20 this information, is he not? 10:00:35

21 MR. BLUME: Objection. Form. Scope.
22 Argumentative.

23 THE DEPONENT: He's certainly replying to
24 an email from Johanna.

25 Q. (By Mr. Loeser) Okay. And does he not 10:00:47

Page 482

CONFIDENTIAL

1 say "In the spirit of fairness I would not 10:00:48

2 say anything around the lines that 'only a few apps
3 have access to this information'?"

4 A. That's what's on the page.

5 Q. And does he not say that he would 10:00:59

6 "suggest that this option under the App Settings is
7 an artifact of what used to be true and enforce our
8 messaging that apps can no longer access
9 friend_*permissions"?

10 A. Again, those words are written on the 10:01:14
11 page.

12 MR. LOESER: We can go to the next
13 exhibit. And I think this will be the last thing
14 that we do today to abide by your request that we
15 stop at the -- the late hour that it is now for 10:01:34
16 you.

17 THE DEPONENT: I'd appreciate that.
18 Thank you.

19 (Exhibit 344 was marked for
20 identification by the court reporter and is 10:01:38
21 attached hereto.)

22 MR. LOESER: So this as -- okay. This
23 will be marked Exhibit 344.

24 Q. (By Mr. Loeser) And Mr. Cross, I'm
25 showing you what's been marked as Exhibit 344. And 10:02:21

Page 483

CONFIDENTIAL

1 it's quite a long email string and -- and not to 10:02:23
2 worry because I don't have questions about the
3 whole thing.

4 I will note for the record that a number
5 of the pages are -- nothing can be read because of 10:02:29
6 the redactions that are on the pages.

7 And -- but if we go to the top email in
8 the thread, it's an email from Johanna Peace
9 to Joshua Smith, yourself, and Eddie O'Neil.

10 Do you see that? 10:02:51

11 A. I see that.

12 Q. And the date on the email is
13 September 11, 2015, and the subject is "Re:
14 [a/c priv] Re: WSJ story on API migration."

15 Do you see that? 10:03:14

16 A. I see that.

17 Q. And is there a lawyer among the -- to
18 your knowledge, or any of the persons from or to
19 whom this email sent, a lawyer?

20 THE DEPONENT: Sorry. Say that -- say 10:03:35
21 that again, Rob. You're --

22 MR. BLUME: Sorry. Objection. Scope.

23 Q. (By Mr. Loeser) Yeah. The recipients
24 are Joshua Smith.

25 Do you know who he is? 10:03:42

Page 484

CONFIDENTIAL

1 Q. And so this appears to be information 10:04:54
2 that -- that she was developing with regard to a
3 Wall Street Journal story on API migration, right?

4 A. That's correct.

5 Q. And API migration is a reference to the 10:05:04
6 changes to the APIs with the new platform?

7 A. That's correct.

8 Q. Okay. And so in -- in her email, she
9 presents the information that it appears that she
10 had prepared for the Wall Street Journal. 10:05:20

11 She states "Under API 2.0, app developers
12 can get the following info about a user who logs in
13 with their Facebook account. Some caveats apply."

14 Do you see that?

15 A. I do. 10:05:33

16 Q. And she has a couple different
17 categories. One is, "This is data that used to be
18 available by default and now can only be accessed
19 with Facebook's approval."

20 Do you see that? 10:05:45

21 A. I see that.

22 Q. And then she has a heading that says
23 "This data used to be available through Facebook's
24 API and is no longer available, period. This
25 includes 30 different data points about your 10:05:56

Page 486

CONFIDENTIAL

1 friends." 10:05:58

2 A. I see that.

3 Q. Now, if you look at the bolded text that

4 I just read, at the time that statement -- at the

5 time this email was sent on September 11th, 2015, 10:06:13

6 was it true that this data used to be available

7 through Facebook's APIs and is no longer available,

8 period?

9 A. No, this information was still available

10 to some -- some whitelisted applications at the 10:06:27

11 time.

12 Q. So if we go to page 10 in this string,

13 which is further back in time, there's an earlier

14 version of the information that Ms. Peace had put

15 together. And this is dated September 11th, 2015, 10:06:50

16 but earlier in that day. This is at 12:39, and the

17 other message we just went through was at 2:10.

18 We see that same heading towards the

19 bottom of the page --

20 A. I'm sorry. Could you give me the Bates 10:07:04

21 number of the page you're looking at?

22 Q. Yeah. Yeah.

23 FB-CA-MDL-01169164.

24 A. Got it. Thank you.

25 Q. And you'll see the same bolded heading, 10:07:16

Page 487

CONFIDENTIAL

1 "This data used to be available through Facebook's 10:07:18
2 API and is no longer available. This includes 30
3 different data points about your friends." [as
4 read]

5 And -- and there's a -- appears to be a 10:07:25
6 comment and the initials for the comments are SC.

7 Is that you?

8 A. I think that would have been me.

9 Q. Okay. And you write "we may need to be
10 careful about the finality here. There are still 10:07:37
11 apps on v1 (extended deprecation window) and we may
12 have apps under contract which retain access to
13 this information. Don't know if we need to explain
14 that in this context."

15 Do you see that? 10:07:55

16 A. I see that.

17 Q. So that's consistent with the answer you
18 just gave about that bolded heading not being
19 accurate at the time, right?

20 MR. BLUME: Objection. Form. 10:08:06

21 THE DEPONENT: It's consistent with my
22 previous statement that at this time there were
23 still apps that had access to some friends
24 information via the API.

25 Q. (By Mr. Loeser) And you write "Don't 10:08:24

Page 488

CONFIDENTIAL

1 know if we need to explain that in this context." 10:08:24

2 And it is true, is it not, that -- that

3 that additional information that you indicate in

4 that parenthetical was not communicated to the

5 Wall Street Journal in connection with this story? 10:08:39

6 MR. BLUME: Objection. Form. And scope.

7 THE DEPONENT: I can't say for certain

8 what information was shared with -- with the

9 Wall Street Journal.

10 Q. (By Mr. Loeser) Now, in that same 10:09:05

11 comment from you, there is another comment from JP,

12 and that -- those are the initials of

13 Johanna Peace, right?

14 A. That's correct.

15 Q. And do you see that she says "Don't think 10:09:19

16 we need to go into that detail here; we can always

17 clarify if asked."

18 Do you see that?

19 A. I see that.

20 Q. And then you respond to that with another 10:09:27

21 comment, and it just says, "[SC: sgtm!]"

22 What does "sgtm" mean?

23 A. It sounds good to me.

24 MR. LOESER: I think we can conclude for

25 the day, Mr. Cross. 10:09:44

Page 489

CONFIDENTIAL

1 And, again, I do want to -- I do 10:09:45

2 appreciate the time you've spent.

3 And we can go off the record.

4 THE VIDEOGRAPHER: Off the record. It's

5 10:09 p.m. 10:09:53

6 (TIME NOTED: 10:09 p.m.)

7

8

9

10 ---o0o---

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

Page 490

CONFIDENTIAL

1 I, SIMON CROSS, do hereby declare under
2 penalty of perjury that I have read the foregoing
3 transcript; that I have made any corrections as
4 appear notes; that my testimony as contained
5 herein, as corrected, is true and correct.

6 Executed this ____ day of _____,
7 2022, at _____, _____.

8
9
10
11 _____
SIMON CROSS

12
13
14
15
16
17
18
19
20
21
22
23
24
25

Page 491

CONFIDENTIAL

1 I, Rebecca L. Romano, a Certified Shorthand
2 Reporter of the State of California, do hereby
3 certify:

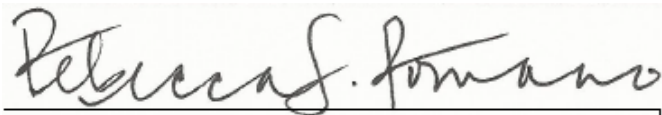
4 That the foregoing proceedings were taken
5 before me remotely at the time and place herein set
6 forth; that any deponents in the foregoing
7 proceedings, prior to testifying, were administered
8 an oath; that a record of the proceedings was made
9 by me using machine shorthand which was thereafter
10 transcribed under my direction; that the foregoing
11 transcript is true record of the testimony given.

12 Further, that if the foregoing pertains to the
13 original transcript of a deposition in a Federal
14 Case, before completion of the proceedings, review
15 of the transcript [] was [X] was not requested.

16 I further certify I am neither financially
17 interested in the action nor a relative or employee
18 of any attorney or any party to this action.

19 IN WITNESS WHEREOF, I have this date
20 subscribed my name.

21
22 Dated: May 17, 2022

23 
24

Rebecca L. Romano, RPR, CCR

25 CSR. No 12546

Page 492

DEREK W. LOESER, ESQ.

dloeser@kellerrohrback.com

May 17, 2022

IN RE: FACEBOOK, INC., CONSUMER USER PROFILE LITIGATION

MAY 12, 2022, SIMON CROSS, VOLUME II, JOB NO. 5219195

The above-referenced transcript has been

completed by Veritext Legal Solutions and

review of the transcript is being handled as follows:

___ Per CA State Code (CCP 2025.520 (a)-(e)) - Contact Veritext to schedule a time to review the original transcript at a Veritext office.

___ Per CA State Code (CCP 2025.520 (a)-(e)) - Locked .PDF

Transcript - The witness should review the transcript and make any necessary corrections on the errata pages included below, notating the page and line number of the corrections. The witness should then sign and date the errata and penalty of perjury pages and return the completed pages to all appearing counsel within the period of time determined at the deposition or provided by the Code of Civil Procedure.

___ Waiving the CA Code of Civil Procedure per Stipulation of Counsel - Original transcript to be released for signature as determined at the deposition.

___ Signature Waived - Reading & Signature was waived at the time of the deposition.

Page 493

CONFIDENTIAL

1 ___ Federal R&S Requested (FRCP 30(e)(1)(B)) - Locked .PDF
2 Transcript - The witness should review the transcript and
3 make any necessary corrections on the errata pages included
4 below, notating the page and line number of the corrections.
5 The witness should then sign and date the errata and penalty
6 of perjury pages and return the completed pages to all
7 appearing counsel within the period of time determined at
8 the deposition or provided by the Federal Rules.
9 _X_Federal R&S Not Requested - Reading & Signature was not
10 requested before the completion of the deposition.

CONFIDENTIAL

IN RE: FACEBOOK, INC., CONSUMER USER PROFILE LITIGATION
SIMON CROSS, VOLUME II, JOB NO. 5219195

E R R A T A S H E E T

PAGE_____ LINE_____ CHANGE_____

REASON_____

PAGE_____ LINE_____ CHANGE_____

REASON_____

PAGE_____ LINE_____ CHANGE_____

REASON_____

PAGE_____ LINE_____ CHANGE_____

REASON_____

PAGE_____ LINE_____ CHANGE_____

REASON_____

PAGE_____ LINE_____ CHANGE_____

REASON_____

WITNESS

Date

CONFIDENTIAL

[& - 2019]

| | | | |
|---|---|---|---|
| & | 10th 331:14 | 2 | 361:11 362:23 382:1 |
| & 208:14 209:19 211:5 212:5 213:5 295:22 313:25 317:19 319:11,21 322:21 399:7 416:24 417:3 418:5 477:7 493:23 494:9 | 350:22 361:11 397:7 11 217:18 243:3 293:24 294:3 484:13 11th 347:10 485:12 487:5,15 12 208:16 209:18 217:20 219:1 294:23 295:19 409:25 493:5 | 2 222:24 223:10 224:3,20,20 225:12,18 228:7 229:3,9 230:4 232:8 253:22 256:9 257:1,17 260:6,8 299:15 319:18,19 320:11 347:24 358:23 360:3 364:8 399:2 403:18 409:21 420:3 423:20 425:20 426:8,19 432:11,21 438:19 438:21 443:4,6,14 443:22 445:4 447:15 448:1 454:8,23 455:12 455:13,21 456:13 457:4,20 458:25 459:22 460:21 461:5 463:9 464:3 465:13,16,23 466:2,10 467:25 469:4,10,16 470:4 478:8 | 2013.xlsx. 327:20 2014 216:11,16 246:1 255:13 329:13 348:2 394:4 396:9,15 397:7 402:21 409:14,22 410:3 410:25 413:23 419:25 420:1 426:13 433:23 436:10 438:14,15 438:23 441:5 445:20,22 446:16 449:5 457:16 459:3 466:15,19 467:7,9 469:1 |
| 0 | 12:10/2013 350:6 12/5/13 215:19 216:7 362:18 363:21 1201 210:11 12546 208:21 492:25 12:39 487:16 12th 211:9 219:6 397:21 13 217:22 331:5,8 379:25 380:2,8 382:1 383:22 14 217:24 330:19 410:22 416:10 14th 419:25 482:3 | 447:15 448:1 454:8,23 455:12 455:13,21 456:13 457:4,20 458:25 459:22 460:21 461:5 463:9 464:3 465:13,16,23 466:2,10 467:25 469:4,10,16 470:4 478:8 2.0 486:11 20 218:9 327:10,12 393:8 402:18,19 451:5 452:21 20-0466 208:22 200 402:20 2001 213:8 2010 236:5 2013 244:4 260:24 284:18 294:5 316:20 327:6,24 330:19 331:14 337:18 347:10 350:22 359:19 | 2015 248:8 284:24 304:22 327:6 445:23 446:4,10 446:14,14,18 447:5,11,16 448:8 448:25 449:5 484:13 485:12 487:5,15 2016 446:4 449:11 449:12 473:16 474:14,18 477:4 478:5,16 479:5,17 480:21 482:3,9 2017 449:15,16,18 449:19 2018 241:25 242:5 438:13 443:18 449:22,25 450:5 450:21,25 451:11 452:3,4,20 453:15 453:19 470:16 2019 241:3 242:9 450:1,22 451:4,5 |
| 1 | 15 218:3 413:21 16 218:5 1600 211:10 16th 244:4 17 218:7 441:2 492:22 493:3 18 208:4 209:4 18,067 301:1 1801 212:9 1881 213:16 19 452:21 1a 351:2 | | |
| 1 223:25 224:2,21 226:25 230:4,15 295:6,14 296:9 353:4 403:7 420:3 446:15 448:1 494:1 10 487:12 100 358:10 360:19 364:19 394:9 395:8 406:21 10:09 490:5,6 | | | |

CONFIDENTIAL

[2019 - 7321]

| | | | |
|--|--|--|---|
| 451:16,20 452:10 452:13,16 2020 241:4,12 451:8,17,20,25 452:16 2021 452:16 2022 208:16 209:18 219:1,6 445:18,19 452:16 491:7 492:22 493:3,5 2025.520 493:9,12 206 210:14 208 208:25 2100 213:9 213 214:10 214 213:11 21st 260:24 221 215:5 22nd 337:19 402:20 23rd 402:21 24 327:20 478:5 243 217:12 244 217:14 24th 327:24 396:9 396:15 409:14 410:3 473:16 474:14 477:4 478:16 480:21 250 274:25 276:23 276:25 277:3 253-9706 214:10 256 217:16 25th 337:18 26 404:1 26,000 404:3,22 405:16,18 417:3 27 216:16 27th 433:23 | 2843 208:3 209:3 28th 338:15 29 241:12 293 217:18 294 217:20 298-5735 212:12 2:10 487:17 2:36 209:18 219:2 219:5 2nd 244:1 3 3 237:24 238:18 268:6 276:21 280:25 285:4 294:19 320:12 334:19 340:14 347:7 351:9 403:23 3.0 244:1,12 245:18,23,24 247:3 253:19 295:22 343:23 351:17 356:9 359:13 361:2 409:18 435:20 3.0. 329:14 3.0.docx. 244:8 3/24/2016 472:10 30 208:12 290:23 477:10 486:25 488:2 494:1 30,000 303:9 303 212:12 30k 303:8 30th 246:1 248:8 284:24 304:22 329:13 348:2 409:22 426:13 436:10 438:13,14 438:23 441:5 443:18 457:16 | 466:15 467:7 469:1 3161 212:18 3200 210:12 327 218:9 32nd 214:8 331 217:22 335 235:18 338 215:11 349:23 350:1 339 215:16 361:13 340 216:4 363:10 363:11 341 216:11 393:23 393:24 342 216:16 433:16 433:19 343 216:20 472:5 472:18,19,24 344 217:4 483:19 483:23,25 3491 208:23 350 215:11 361 215:16 363 216:4 393 216:11 3:31 260:12 3:46 260:15 3rd 294:5 4 4 333:11 40,000 275:16,16 275:18 40k 274:22 275:12 275:15 410 217:24 413 218:3 415 211:12 42,223 315:25 4200 212:10 | 433 216:16 440 218:5 441 218:7 445-4003 211:12 45 417:3 451-3993 212:20 472 216:20 483 217:4 495 208:25 5 5 217:12 243:2,14 347:9 5219195 208:24 493:5 495:2 54 342:10,17,20 555 211:9 214:7 5:13 326:6 5:36 326:9 5th 214:7 362:23 6 6 208:12 217:14 244:18,25 245:7 245:15 290:23 403:7,15 6,475,108 302:3 623-1900 210:14 639,342 382:2 65,996,118 389:1 650 213:18 67 239:10 698-3204 213:11 6th 331:15 7 7 217:16 256:21 259:3,3 260:18 353:7 358:24 485:4 70 239:7 7321 492:24 |
|--|--|--|---|

CONFIDENTIAL

[75201 - actual]

| | | | |
|----------------------------|-------------------------|-------------------|--------------------------|
| 75201 213:10 | 302:5 317:3 | 314:4 315:14 | 482:4,9,19 483:3,8 |
| 7:05 393:17 | 321:19 329:4 | 317:20 318:11,16 | 488:12,23 |
| 7:39 393:20 | 334:24 357:3 | 318:20 319:1,5,12 | accessed 317:9 |
| 8 | 375:10 380:5 | 319:14,15 320:12 | 477:9 486:18 |
| 8 358:24 | 381:8 391:9,24 | 320:21,25 321:6 | accesses 370:19 |
| 80 477:5 | 392:3 401:12,25 | 321:16,17,18,20 | accessing 230:7,8 |
| 80202-2642 | 419:8,8 440:11 | 321:22 322:1 | 231:7 316:3 317:4 |
| 212:11 | 453:6 481:8,9 | 326:13 333:18 | 477:5,17 |
| 827 208:22 | absolutely 393:5 | 343:8 345:4,7,15 | account 288:8 |
| 849-5206 213:18 | abundantly | 345:19 346:10 | 289:4 290:1 291:4 |
| 8568 402:14 | 282:21 | 347:2,6 358:25 | 291:14,21 380:6 |
| 8:37 438:8 | access 222:22 | 366:8 369:7,23 | 392:10 486:13 |
| 8:50 438:11 | 223:9,24 224:11 | 370:22 375:25 | accurate 247:1,8 |
| 8th 338:16 347:8 | 224:13 227:15 | 400:5,15,21,24,25 | 390:3 396:13 |
| 9 | 228:11,16 229:8 | 401:13 402:1,9 | 437:20,24 479:14 |
| 90 307:22,23 308:5 | 229:10,25 230:9 | 406:17 408:8 | 480:9,23 488:19 |
| 90013 214:9 | 230:14,21,22 | 414:14 418:22 | accurately 353:14 |
| 92612-4412 | 231:4,23,25 | 424:9 425:7 | 353:15 358:20 |
| 212:19 | 232:16,19,23 | 426:24 427:2,3,7 | 437:14 |
| 94304-1211 | 233:9 234:11 | 427:15 428:8 | acknowledging |
| 213:17 | 235:3 236:9,14,15 | 429:6,17,24 430:4 | 412:3 |
| 94607 211:11 | 236:22 237:7,8,9 | 430:12,23 432:9 | acronym 364:20 |
| 949 212:20 | 237:15,19 238:25 | 432:18 441:25 | act 246:17 249:12 |
| 98101 210:13 | 239:1 241:4,13,19 | 443:6 447:19 | 250:6,17 |
| 9:34 471:23 | 241:22 249:12 | 448:4,14 449:7,13 | action 492:17,18 |
| 9:47 472:1 | 250:6,17 251:21 | 449:17,20 451:6 | actions 208:7 |
| 9th 410:25 413:23 | 252:14 253:13,25 | 451:10 454:8,23 | 209:7 336:7 |
| 420:1 | 254:1 258:20,23 | 455:10,20 456:12 | active 373:7,16 |
| a | 263:15,24 269:4 | 457:3,19 458:24 | 374:2,10,12 |
| abide 483:14 | 272:16 275:16 | 459:21 460:20,24 | 388:16,21 389:1 |
| ability 233:5 249:7 | 276:11,17 277:16 | 461:4 463:8 464:1 | 389:14,19,24 |
| 252:13 265:9,12 | 277:25 283:15 | 464:22 465:3,11 | 390:8 |
| 321:1 322:2 390:5 | 284:8 285:20 | 465:15,20,21 | actively 301:15 |
| 398:6 443:20 | 286:8,20 287:10 | 466:1,7 467:24 | 389:12 |
| 448:4,14 449:7 | 287:16 288:10 | 469:3,9,14 470:3 | activity 372:23 |
| able 222:22 | 289:5 290:2 291:5 | 474:13,16,23,24 | 375:2,15 376:6,14 |
| 226:10 230:22 | 291:15,25 293:15 | 476:9,19 477:16 | 376:15,18,20 |
| 235:8 249:12 | 295:10 303:24 | 477:25 478:9,20 | 377:3 392:19 |
| 250:6,17 273:21 | 305:16,16 306:4 | 478:24 479:1,6,9 | acts 479:12 480:7 |
| 292:25 301:4 | 308:9 309:19 | 479:13,18 480:8 | actual 329:25 |
| | 310:13 313:11,11 | 480:22 481:2,19 | 403:14 |

CONFIDENTIAL

[actuality - answer]

| | | | |
|---------------------------|---------------------------|---------------------------|--------------------------|
| actuality 360:1 | 342:25 343:17,22 | aligned 251:17 | analyst 347:13 |
| ad 287:23 | 349:12 437:9 | allow 223:8 232:7 | analyze 347:14 |
| adaniel 210:17 | advantages 226:18 | 240:12,12 256:2 | 348:14 |
| adavis 211:13 | advent 402:10 | 268:22 269:4 | analyzed 239:18 |
| add 256:23 306:1 | advertising 375:11 | 270:2 274:5 | 349:4 |
| 342:11 | 383:15 384:1 | 318:16 333:10 | analyzing 384:10 |
| added 230:9 | 391:8 | 342:11,18,23 | angeles 214:9 |
| 231:18 255:6 | affirmative 425:24 | 395:22 406:17 | anne 211:6 |
| 274:13 329:19 | affirmatively | 411:23 418:22 | announced 246:1 |
| 330:7,13,19 | 228:20 | 451:24 455:20 | 247:6 278:6 |
| addition 326:14 | afternoon 221:7 | allowed 248:8 | 284:20 285:14 |
| 400:9 427:5 | agenda 364:8,10 | 253:2,3,13 258:19 | 298:9 304:11,22 |
| additional 221:14 | 364:21,23 366:9 | 258:22 275:16 | 307:11 348:2 |
| 222:14 237:22 | aggregate 225:25 | 318:20,21,24 | 409:20 436:9 |
| 273:8 278:16 | 226:8 | 320:17 340:3 | 438:17,21 445:20 |
| 307:18 329:19 | aggregation | 392:18 460:23 | 459:2 |
| 333:10 346:18 | 226:24 227:9 | 474:24 477:24 | announcement |
| 427:10 429:24 | aggregator 378:24 | allowing 232:15 | 304:6 314:11 |
| 476:23 489:3 | aggregators 368:3 | 293:6 329:3 | 318:6 334:12 |
| address 263:6 | 378:18 | alternative 435:11 | 445:22 |
| 440:5 441:5 | ago 270:20 281:20 | alternatives | announcements |
| 455:18,23 457:15 | 309:3 336:1 405:7 | 424:23 | 298:12 343:4 |
| 469:1 | agree 220:9 | alto 213:17 | 467:8 |
| adds 274:11 | 228:25 253:8 | amazon 383:22 | announcing 414:3 |
| adele 210:8 219:17 | 293:5 419:8 | 388:2,7 | 423:19 |
| 243:12 | 428:22 | amee 473:14 | annoyingly 362:25 |
| adieu 220:7 | agreed 266:19 | american 362:20 | answer 228:12,21 |
| administered | agreeing 425:24 | amir 327:15 | 229:13,13 240:10 |
| 221:2 492:7 | 446:9 | amount 252:15 | 240:12 251:14 |
| administering | agreement 266:12 | 253:6 297:4 305:2 | 254:11 261:8,14 |
| 220:10 | 281:7 | 320:8 383:21 | 261:19,24 268:8,9 |
| admit 225:19 | agreements 263:5 | 451:1 452:4,7 | 269:17 270:9,17 |
| admitted 225:9 | 399:6,7 420:20 | amounts 450:20 | 270:20 272:23 |
| 226:2,3,19,20 | 456:11 457:2,18 | analysis 239:18,21 | 273:19 278:25 |
| admitting 225:13 | 458:23 459:20 | 240:1,15,19 263:7 | 279:2 280:4 |
| 225:14 | 460:19,22 | 264:20 276:5 | 284:13 286:23,24 |
| adopted 339:25 | ahead 234:16 | 301:7 302:16,24 | 289:19 290:5,6,15 |
| 466:10 | 284:4 290:20,24 | 302:25 348:11,21 | 291:19 292:23 |
| ads 369:11 | 335:19 353:7 | 348:21,24,25 | 293:1,18 296:22 |
| advance 222:4 | 355:7 458:18,19 | 349:11,14 380:4 | 301:8 316:11,12 |
| 304:5,10 305:3 | 468:5 482:1 | 381:2 | 316:15,17,19 |

CONFIDENTIAL

[answer - app]

| | | | |
|------------------------|-------------------------|--------------------------|--------------------------|
| 325:2 330:10,23 | 458:8 461:13 | 435:4 438:18,20 | 450:19,20 451:16 |
| 335:11 337:6 | 470:10 482:6 | 440:19 443:3,6,23 | 451:19,21 452:11 |
| 339:15 340:20 | answering 223:15 | 445:3,4 446:3,14 | 452:16,20 453:7,9 |
| 341:2,4 342:2 | 230:2 276:3 | 446:22 447:15 | 453:14,15,20,20 |
| 348:14,16 349:2 | 377:17 389:21 | 450:16,25 452:3 | 454:1 455:2 |
| 349:19 351:13 | 431:18 461:12 | 452:13 453:3,19 | 464:23 469:2,8 |
| 356:12 358:20 | 467:12,15 | 454:7,22 455:13 | 474:23 486:6 |
| 371:9 372:6 | answers 257:14 | 455:15,16,21 | 487:7 |
| 373:21 374:21 | 420:23 | 456:13 457:4 | apologies 295:15 |
| 375:10 381:16 | anymore 276:16 | 458:25 459:22 | 352:11 416:18 |
| 383:18,20 385:6,7 | 373:2 | 460:21 461:4 | apologize 295:16 |
| 385:8 386:18,22 | anyway 300:17 | 464:2,2 465:7,12 | 416:17 |
| 388:6 390:3,14,25 | ap 455:11 456:13 | 465:16,23 466:2,2 | app 216:21 224:24 |
| 391:10,24 392:4,7 | 457:19 463:9 | 466:9 467:25 | 225:14 226:11,13 |
| 392:16 396:1 | api 217:5 222:23 | 469:4,10,15 470:4 | 226:18 231:3 |
| 412:12,16 413:8 | 223:10 224:2,20 | 477:5 484:14 | 233:6 235:9 236:9 |
| 414:22 420:13 | 224:20 225:9,21 | 485:9 486:3,5,11 | 236:14,15,21,22 |
| 434:18,24 436:1 | 226:11,25 228:3,3 | 486:24 488:2,24 | 237:14,18 238:12 |
| 437:22 446:5,25 | 228:7 229:3,9 | api's 400:4 | 238:17,24,24 |
| 447:12,21 448:18 | 230:6,10,15 231:1 | apis 227:20,23,24 | 239:4,8 248:10 |
| 452:22,24 455:8 | 231:13 232:8 | 227:24 228:7,11 | 249:9,11,14,18,25 |
| 458:4 459:12,15 | 234:22 252:15 | 228:16 229:4,8,10 | 250:8,19 253:4,23 |
| 460:10 461:1,14 | 253:6,12 257:1,17 | 229:21,25 230:23 | 253:24 254:3,24 |
| 461:19,19 462:9 | 262:23 296:13 | 231:22 232:1,9,21 | 255:14 258:19 |
| 462:10 464:6,7 | 297:25 299:15 | 233:3,24 234:3,19 | 273:23,25 274:3,6 |
| 467:16,21 468:3 | 300:14,15 312:18 | 234:21 262:19 | 276:11 287:15 |
| 468:10,14,17 | 313:12,23 314:11 | 298:1,6,17 299:2,5 | 297:2 301:15 |
| 469:24 476:4,5,7 | 314:18 316:4,18 | 299:21 300:1,21 | 302:2 305:18 |
| 479:24 480:2,18 | 316:19 317:3,4 | 315:15 317:9 | 306:4,9 312:9,23 |
| 481:4,6,8,9,10,12 | 318:6 319:18,19 | 318:16,19,21 | 313:5,10,13,24 |
| 481:13,14,22 | 320:10,16,25 | 345:5 346:3,11 | 314:25 315:18,18 |
| 488:17 | 322:1 334:15 | 347:2 399:22 | 315:22 317:9,17 |
| answerable | 340:16,16 345:6,8 | 400:10,16,22 | 319:9,12 320:13 |
| 386:23 387:2 | 346:20 347:6,23 | 401:11,24 402:9 | 321:6,9 322:3,16 |
| 390:18 391:10 | 357:2 399:16 | 411:22 412:2,24 | 322:16 328:3,5,8,9 |
| answered 223:13 | 400:3,11 402:10 | 417:3 420:3 | 336:18 353:5 |
| 228:19 311:5,7 | 409:21 415:16,16 | 421:24 423:20 | 369:10 372:21 |
| 312:11,13 352:11 | 418:6 421:25 | 424:10 426:15,25 | 373:1 376:18 |
| 371:8 385:1,2,5 | 422:1 424:11 | 427:2,3,16 428:9 | 377:3 389:22 |
| 415:6 447:24 | 425:20 426:8,19 | 445:10 450:7,14 | 409:24 414:14 |
| 456:16 457:7,12 | 432:10,21,24 | 450:15,15,16,17 | 417:3 418:22 |

CONFIDENTIAL

[app - april]

| | | | |
|--|---|--|---|
| 430:14,25 441:8,9 441:21,25 442:2,9 442:12,19,24 443:6,8 444:6,24 445:8,25 446:12 446:20 447:6 448:8,24 454:8,9 454:23,24 455:5,7 455:9,11 456:10 457:1,17 458:22 459:19 460:18 467:22 469:1,7,19 470:7,21 472:11 473:23 475:6,17 476:21 478:12,22 483:6 486:11 appear 245:17 362:5 475:6,18 491:4 appearances 210:1 211:1 212:1 213:1 214:1 appearing 210:2 211:2 212:2 213:2 214:2 493:18 494:7 appears 267:4 269:2 275:23 281:14 312:25 314:12 350:15 352:25 353:16 360:15 378:3 381:4 382:11 477:9 486:1,9 488:5 appendix 312:14 312:16 appetite 303:24 apple 383:22 477:7 | appli 461:7 application 225:20 226:1,3,20 231:17 237:3 238:6,14,23 252:4 253:3 254:25 258:22 271:19 273:23 302:13 328:23 389:24 443:21 446:15 applications 226:10 227:9 228:15 231:6 232:23 233:19,21 242:10 255:22 256:10 257:25 275:18 289:12 301:25 302:14 372:11 373:11 443:12,13 447:19 448:3 449:5,13,19 451:2 452:5 476:9 487:10 applied 320:3 apply 486:13 appreciate 410:17 459:12 460:6 479:25 480:19 483:17 490:2 appropriate 247:7 351:18 405:10 approval 486:19 approve 333:12 approved 256:10 335:25 approving 335:20 335:21 336:10,13 approx 477:5 apps 222:21 223:8 224:10 235:2 236:9 237:6,8 | 241:6,14,21,24 248:8 249:14 251:22 252:18 253:13,13 257:20 259:10 274:22,24 275:1,3,8,12,15,16 276:24,25 277:3,5 281:25 282:2 285:19 286:15,19 287:9,15 293:14 297:18 298:16 300:11,11,25 301:5 303:9,11,15 303:20,24 305:16 305:16 306:13,14 306:19 307:1,6,17 308:9,23 309:17 310:6,11,25 311:1 311:11,15 312:1,5 313:7,25 314:8 315:8,20,23 316:3 317:4,8,17,19 318:10 319:11,13 319:24 320:3,4,12 320:16,17,21,21 320:22 321:16,17 321:18 322:13,18 329:3 330:4 333:10,12,13,17 334:17 335:1,21 335:25 336:10 338:9 339:2,12,17 339:25 340:3,8,24 342:13 343:7,14 344:20 345:14 353:6,8,18,24 355:8,14 356:7 357:7 358:12 360:14,15,25 364:14 366:23,25 367:2,10 368:6 | 375:2,15 376:6 378:5,13,18,22,25 380:6 389:10,12 389:15 390:8 391:16,22,25 392:18 402:9 404:3,4,17,19,23 404:23 405:16,18 405:22 406:15 407:8 408:6 409:6 409:23 414:15 417:13 426:23 427:6,10,14 428:7 429:5,16 430:3 435:4 442:8 445:3 447:16 448:13 449:7,7,25 450:1,4 451:3,5,9,12,25 452:8 455:19,20 457:25 459:4 463:7 464:1,21 465:14,19,20,22 470:2,15 473:24 474:4,12,16,21,22 474:24 475:4,24 476:2,18,22 477:5 477:9,14,17,24 478:9,20,24 479:1 479:6,9,13,17 480:8,22 481:1,17 481:17,17,17,19 482:4,8,19 483:2,8 488:11,12,23 april 246:1 248:8 255:13 284:24 304:22 329:13 348:2 409:22 426:13 436:10 438:13,14,23 441:5 443:18 457:16 466:15,19 |
|--|---|--|---|

CONFIDENTIAL

[april - aware]

| | | | |
|--|--|---|---|
| 467:7 469:1 archibong 259:7 261:12 280:19 286:9 294:4 331:9 410:25 411:7 413:19 416:12 422:23 428:3 438:25 area 372:9 375:12 424:11,12 425:12 432:24 443:23 445:3 455:14 465:22 469:15 470:12 argumentative 482:22 article 473:20 artifact 478:22 483:7 asap 294:14 aside 244:16 362:7 363:8 asked 223:4,7 227:13,19 229:2 232:14 235:1 238:16 239:6,8 253:25 279:17 308:7 311:13,23 347:16,19 348:23 349:6 369:5,12 370:19,21 371:8 375:24 384:25 398:12 415:6 456:15 457:6,12 459:13,16 460:7 462:7 464:8 468:15,18 470:10 482:6 489:17 asking 228:25 265:17 271:12 272:12 292:22 | 316:14,21 326:11 346:25 354:25 360:23 370:25 387:23 398:19,24 399:19 402:3 460:9 461:15,25 462:19 467:13 481:13 482:18 asks 397:14 398:14 assess 265:24 282:5,24 360:5,12 360:23 384:19 assessed 385:21 386:19 assessing 388:9 assessment 268:1 281:8 358:24 367:19 378:1,4,10 378:17,22,23 379:4,13,24 380:7 380:21,22 385:17 385:19 386:5 416:25 assigned 463:3 associate 214:16 associated 364:2,2 381:9 389:11,23 425:4 assume 246:6 277:12,13 287:12 362:20 391:17 406:11 411:9 434:17 assuming 294:13 442:25 assumption 473:22 attached 245:21 274:24 275:14,21 278:17 350:3 | 361:10,15 363:13 394:1 413:17 433:18 435:3 472:7 483:21 attachment 244:7 244:16 259:10 327:19 350:7 361:17 411:10 413:23 attempt 341:6 348:18 attempted 317:7 317:10 attempting 263:20 264:3 265:24 278:6 283:23 288:19 359:25 429:21 attorney 212:17 213:7,15 219:14 220:13 492:18 attorneys 210:10 211:8 212:8 audience 309:25 310:2 414:6,10 456:23 audit 282:4 296:13 296:19 297:12,14 327:19 338:10 404:1,3,22 august 244:4 260:24 284:18 auld 211:5 authenticating 258:20,23 authentication 236:12 301:12 author 243:17 316:24 363:2 370:25 371:1 382:8 415:10 | 422:10,13 authored 416:19 419:22,24 authoritative 261:8,14,19,24 authority 463:16 authorization 236:10 authorize 238:14 authorizing 238:5 available 227:25 228:1,3,4 230:16 230:19,19 232:20 232:24 233:10,23 233:24 234:3,23 242:13 254:23 255:14 256:8 299:8 300:10 320:19 337:12 395:16 415:20 418:23 443:11 446:15 451:2 452:5,7 453:21 465:7 486:18,23 486:24 487:6,7,9 488:1,2 avenue 210:11 213:8 average 238:13 239:8,10 373:3,7 avoid 479:21 avoiding 467:12 aware 227:5 354:10 387:4 424:13 432:7,17 432:25 433:4,7,10 433:13 435:19,24 436:2 458:1,11,12 458:13 463:25 464:4 467:10 |
|--|--|---|---|

CONFIDENTIAL

[awesome - blume]

| | | | |
|-------------------------|---------------------------|--------------------------|------------------------|
| awesome 350:12 | 269:2 275:22 | believed 277:23 | 354:17 358:23 |
| b | 281:6 282:7 283:1 | 420:1 | 399:1 417:7 419:8 |
| b 208:12 212:16 | 283:13 288:5,23 | believing 475:5 | 436:23 454:17 |
| 214:5 215:8 216:1 | 328:3,5,8 333:15 | belongs 249:8 | 478:4 |
| 217:1 290:23 | 350:15 351:7 | beneficial 375:7 | bleichmar 211:5 |
| 409:3 494:1 | 353:16 378:3 | benefit 246:24 | blog 242:8 |
| back 221:11 | 382:10 385:21 | 247:17 | blowing 243:9 |
| 255:11 259:2 | 389:24 398:12 | benefits 293:6 | blume 212:6 |
| 260:14 261:1 | 411:18 412:16 | 375:1 | 219:19,19 220:15 |
| 280:24 289:18 | 413:12 473:22 | best 238:21 264:3 | 222:11,12 227:2 |
| 290:19 309:11 | 485:21 | 267:21,23 292:8 | 229:11 240:8 |
| 326:8 330:19,21 | basis 233:21 | 339:4,4 | 244:19 245:3 |
| 340:11 342:2 | 314:21 315:1,15 | better 258:12 | 247:24 248:4 |
| 347:7,10 349:2 | 315:19 322:11,16 | 292:25 309:7 | 251:2,4,12 253:9 |
| 363:22 366:9 | bates 333:3 396:19 | beyond 254:19 | 254:9,19 255:7 |
| 375:2,16,20 376:6 | 396:21 402:13,13 | 294:12 348:6 | 257:23 258:6,10 |
| 376:14,18 378:12 | 416:7 485:5 | 373:17,18 374:23 | 295:13 331:1 |
| 392:19 393:19 | 487:20 | 375:8 381:11,14 | 335:3 337:9 |
| 396:4 401:18,20 | beginning 219:13 | 389:4 392:13 | 339:13 340:1 |
| 410:15 416:10,21 | 262:3 263:2 274:8 | 407:10 412:10 | 341:5 342:4 |
| 426:1 432:14 | 281:4 350:21 | 415:7 | 344:13,16 345:21 |
| 438:4,10 443:25 | 398:11 403:5 | bfalaw.com | 346:4 348:6,17 |
| 444:15 448:19 | 410:4 473:19 | 211:13,14 | 351:11 352:8,20 |
| 454:15 459:15 | behalf 209:16 | big 369:7,14,18 | 354:4,15 355:16 |
| 471:25 475:2 | 219:20 240:13 | 370:13 421:6 | 356:10 358:14 |
| 479:24 480:4 | 270:18 271:24 | 431:9,20 | 359:5 360:7 361:3 |
| 487:13 | 279:5,25 284:13 | bigger 396:23 | 367:13 369:16 |
| backward 266:12 | 286:25 293:19 | 436:23 | 370:1,7,15,23 |
| 365:25 399:7 | 323:7,8 351:13 | binder 243:3 | 371:5,7,21 372:5 |
| 422:6 | 356:12,16 358:21 | binding 220:11 | 372:19 373:5,17 |
| backwards 266:18 | 370:11 372:7 | bing 314:19 315:3 | 374:3,20 375:8 |
| 420:21 421:12 | 436:1 461:25 | 315:13 322:10 | 376:2,10,23 |
| bad 371:23,25 | behavior 248:17 | 383:22 391:17 | 377:20 378:7 |
| 372:2 | 443:23 | bio 393:4 471:17 | 379:7 380:9,24 |
| badoo 319:22 | belabor 228:17 | birthday 436:19 | 381:11 382:6,16 |
| balance 257:15 | belief 415:25 | 436:24 | 382:18,20,23 |
| bang 260:2,2 | believe 219:22 | birthdays 319:22 | 383:13,24 384:7 |
| bar 404:10,24 | 240:4 241:18 | bit 234:18 252:24 | 384:25 385:6,8 |
| 406:7,9,13 407:16 | 297:6 364:9 412:1 | 261:3 272:5 | 386:2,11,25 |
| based 226:23 | 472:3 476:21 | 276:20 308:7 | 387:15 388:4,18 |
| 239:19 249:22 | | 338:20 349:18 | 389:4 390:10 |

CONFIDENTIAL

[blume - capabilities]

| | | | |
|---|---|---|---|
| 391:2,23 392:13 393:1 395:24 398:4,21 399:24 401:2,14,20 402:6 405:24 406:20 407:10 408:9,20 410:18 411:12 412:10 414:8,19 415:3,4,6,21 416:6 419:1,15,18 420:5 420:11,22 422:17 423:6,24 424:18 425:2,9,21 426:10 426:18 427:17 428:10,19 429:1,7 429:19 430:6,17 430:20 431:2,12 432:22 433:5,11 434:15 435:21 436:17,22 437:2 437:10,15,25 439:24 442:13 444:8 445:1 446:1 446:7,13,21 447:14,23 448:10 449:2 450:10 451:18 452:1,18 453:1 454:4,11 455:1,24 456:5,15 457:6,11,21,24 458:6 459:1,23 461:6,9 463:17 465:17 466:4,18 468:2,5,6 469:11 470:9,22 471:2,7 474:5 476:3,13 477:23 479:4,16 480:24 481:5 482:6,13,21 484:22 488:20 489:6 | bo 399:14 board 310:24 311:9,10,12 394:12 bolded 487:3,25 488:18 bottom 262:5 304:9 485:7 487:19 bottoms 417:20 box 237:23 brackets 275:3 branded 271:18 break 252:8 280:12 325:13 393:2,4,4,7 409:11 410:13 438:1 471:8,17 472:2 breaking 248:13 248:15,16,20 263:4 266:20 breaks 277:5 brief 268:15 407:12 bring 221:17 295:19 428:21 bringing 223:18 broad 425:11 443:9 broader 334:5,14 broadly 251:17 308:19 334:7 392:8 broken 248:18 293:7,8 379:13 browse 273:22 274:5 browsing 273:24 bryan 331:9,18,19 332:14 | bucket 264:20 265:20 281:5 365:12,16,20,24 366:3,7 bucketing 408:6 buckets 277:24 364:11,22 365:1,9 366:10 397:20 398:3,17,20 399:21 build 318:17,22 320:17 338:10 346:17 357:3 460:2,23 466:8 builds 234:5 built 228:10,14 234:7 320:16 372:12 412:23 459:8 bulk 242:4 477:6 bullet 235:25 237:20 241:1,16 266:21 267:8,13 268:19 273:4 296:18 303:22 306:2,11,24 308:13,22 310:6 312:8 322:9 333:7 335:15 336:5,19 338:5 342:6 347:12 414:13 415:15 417:2,11 418:5 423:17,23 424:4 bullets 277:7 281:11 bunch 288:2 335:8 359:8,24 384:12 buongiorno 213:6 business 262:1 309:18 375:7,11 | 383:15 384:2 391:8 button 227:3 bypass 226:11 c c 212:6 217:4 484:14 ca 215:13,14,21 216:8,9,13,14,18 216:23,24 217:6,7 333:4 396:19 485:6 487:23 493:9,12,20 calculate 374:12 calculated 380:12 calendar 393:11 california 208:2 208:21 209:2 211:11 212:9,19 213:17 214:9 492:2 call 225:21 243:19 329:11 397:4 411:16 called 238:23 368:21 371:3 395:15 434:10 calls 352:21 campen 210:7 canonical 224:23 225:3,4,13 396:1 434:23 capabilities 296:10 297:18 327:17 328:4,18 328:25 330:7,13 330:18 333:10 338:11 340:5 342:10,17,21 346:18 366:2,8 399:13,14 402:7 |
|---|---|---|---|

CONFIDENTIAL

[capability - changes]

| | | | |
|--|---|---|---|
| capability 231:19 297:2,17 327:19 328:22 330:7 339:20 365:25 477:15 | 408:16,19,22 418:10 420:2,24 424:4,7 455:5 459:25 | ccr 208:21,22,23 492:24 | chang 245:1 259:7 260:23 261:17 262:4 263:13,17 263:22 265:19,22 266:10 270:1 278:1 285:17 286:9 288:7 294:4 331:9 416:5,12 419:24 422:14 439:10,11 |
| capacity 227:8 239:24 255:17 287:1,5 290:23 296:23,25 297:10 298:24 301:9 303:18 304:2 309:15 310:1 329:22 333:25 336:2 339:15,18 344:18 355:24 356:22 358:8 372:9 406:23 408:24 420:15 437:23 | categories 263:6 277:6 308:11 313:10 319:20 353:6,8 355:8 364:14 366:11 367:2,15,18 377:18 378:5,13 378:22 379:4,10 379:14,20 380:22 404:16,19 405:2 417:17 486:17 | cdavis 212:21 certain 222:21 223:8 227:25 232:7 233:9 248:9 262:18 268:23 270:2 307:6 334:17 336:18 337:14 341:17 343:7 358:10 372:3 377:8 382:12 385:23 395:8 401:4 406:22 422:24 426:15,23,24 429:23 439:2,4,13 453:2 455:22 456:10 457:1,17 458:22 459:19 460:2,18,22 461:3 461:7 463:3 465:3 465:14 475:24 476:2 489:7 | chang's 263:2 264:18 272:14 273:4 284:6 354:14,21 411:6 change 225:23,24 226:17 304:23 423:19 424:10 427:2,4 430:18 440:20 441:19 442:6,17 444:4,21 453:20 459:5 495:4,7,10,13,16 495:19 |
| captioned 367:1 car 307:3 care 373:16 careful 488:10 cares 374:1 cari 210:7 219:17 carry 281:24 case 208:4 209:4 231:3,15,17 244:24 250:16 270:5 292:16 314:20,21 315:15 315:15 320:4 321:13 322:11,11 344:14 358:10 360:21 377:2 394:23 409:3 441:9 445:6,16 492:14 | categorization 285:25 405:12 417:15 418:1 categorize 286:15 303:20 324:20 categorized 353:24 418:3 category 266:5,6,9 275:4 277:8 279:7 307:4 308:2 310:18 314:17 315:9 317:17 318:10 345:12 366:24 367:17,18 379:5 387:11 388:12,21 389:3 391:12 392:17 405:4 407:7 422:2 cause 268:3 274:2 caused 306:1 causing 373:2 caveats 486:13 cc 259:7 327:16 397:22 433:21 ccp 493:9,12 | certainly 285:13 298:10 303:4 304:23 306:10 322:24 388:8 408:12 417:8 453:19 481:9 482:23 certified 209:20 209:21 492:1 certify 492:3,16 cetera 258:25 chakravarti 347:12,18 348:19 challenge 224:25 challenges 230:2 chance 260:17 | changed 248:17 284:24 298:9 308:14 334:11 357:18 403:13 409:7 changes 216:18 224:2,22 245:25 246:16,19 247:6 247:22 248:6,13 248:15,16,21 250:13,23 251:1 262:17,23 263:20 265:25 266:20,23 267:1,7,11 268:13 269:11 278:5 283:25 284:19,21 285:11,13 288:21 288:23,25 298:7 |
| cases 259:9 262:10 268:2,23 270:2 404:13 408:3,5,11 | | | |

CONFIDENTIAL

[changes - communications]

| | | | |
|---|--|--|---|
| 304:5,13 305:4,13 307:10,21,22 308:4 329:12 330:2 334:15 345:8 349:12 356:24 357:1,1 359:12,19,21 370:18 372:10,25 373:9 383:9 384:12 385:21 409:20 421:6 424:12 425:11,18 426:7,12,14,20 428:14 430:8,9 431:4,6 432:1,23 433:24 435:10,19 436:2,5,9 438:17 440:15 458:14 459:2,3 464:20 486:6 changing 216:21 306:9 432:5 472:11 characterization 424:2 characterize 412:18 415:23 418:15 check 222:14 chen 214:16 219:20 220:2 choices 468:14,16 choose 238:7 372:21 373:11 427:14 428:7 441:20 442:8,11 442:18,23 443:19 444:5,23 445:8,24 446:11,19 447:6 448:7,24 469:19 470:7,20 | choosing 376:5 377:3 chose 415:10 chosen 455:22 chris 259:8 261:22 261:23 262:4 264:19 286:9 294:12 310:25 circulating 244:11 circumstance 422:3 circumstances 418:21 423:4 civil 493:19,20 ck 243:19,23 244:11 256:13,14 claims 475:3 clarification 301:20 311:24 334:4 clarifications 485:20 clarify 256:6 378:14 435:8 489:17 clarity 238:22 337:13 classification 262:14 303:15 312:5 classified 318:4 322:25 classifies 324:14 classify 303:11 310:24 311:11,15 311:25 324:1 325:7,7,8 398:19 claufenberg 210:16 clause 266:13 365:25 | clean 474:10 cleaner 296:14 cleanup 296:10 clear 227:12 230:12,25 232:14 237:5,11 252:25 278:9,11 280:16 282:11,21 309:21 310:16 319:10 346:23 352:14 360:19 377:14 383:2 384:17 417:9 425:14 426:3 456:25 462:24 clearly 330:23 383:17 386:15 469:24,25 click 264:14 client 219:21 clients 318:17 319:4 466:9 clip 440:4 close 342:9 closely 338:7,25 code 248:18 307:25 343:12 369:10 493:9,12 493:19,20 coherent 353:2 coleman 473:15 colin 212:16 219:22 colorado 212:11 column 302:1,4,9 312:21,23 313:5 313:12,13 315:22 317:18 318:3 319:9 371:15 379:24 391:16 | columns 312:17 399:14 come 273:21 303:14 327:3,5 342:2 349:17 375:20 384:12 401:7 409:7 comes 363:15 366:22 comfortable 475:19 coming 265:19 267:4 299:23 334:2 440:2 commencing 209:17 comment 488:6 489:11,11,21 commented 478:1 comments 253:14 350:17 361:21 466:13 488:6 commitment 404:11 405:1 406:14,16 407:2 407:15 committing 225:13 common 321:2 322:3 communicate 395:12 477:21 communicated 463:15 464:16 476:12 489:4 communicating 245:10 communication 424:14 communications 473:11 476:16 |
|---|--|--|---|

CONFIDENTIAL

[community - context]

| | | | |
|---|--|--|---|
| community 436:8 440:1 443:10 | complicated 225:16 461:17 | confused 241:10 243:20 378:15 | 421:23 424:11 426:16 427:6 |
| companies 268:12 307:25 311:1 318:11 365:18 385:15 386:6 460:1 | complies 220:18 comply 306:14,20 307:2 421:12 | 461:21 confusing 280:10 475:11 | 434:14,17 435:10 467:23 |
| company 239:15 240:10,13 270:9 270:18 271:2 273:18 284:13 285:7 286:25 293:20 309:13 310:12 325:6 348:19 351:14 355:18 358:18,21 366:1 372:7 386:20 462:4,13 462:15,16,18 | compute 390:15 computed 302:10 con 353:2 concept 233:17 336:14 concepts 231:2 429:9 concern 227:10 254:15,18 356:19 372:13 concerns 226:10 226:15,16 356:1,3 373:8 conclude 359:16 489:24 | confusion 410:16 412:4 462:22 467:20 connect 307:14 connected 384:14 connection 334:18 352:5 354:17 361:1 369:6 373:23 383:8 385:12,24 399:23 489:5 consider 230:6 231:22 257:13 285:3 309:19 310:12 356:6 367:14 370:12 | considering 267:17 381:5 470:2 consistent 308:13 308:19 314:15,15 318:7 323:13 488:17,21 constantin 243:18 256:14,15,16,17 construe 281:12 construed 269:23 349:13 construes 271:2 consumer 208:4 209:4 219:9 493:4 495:1 |
| company's 227:6 387:17 388:6 | concluded 255:24 conclusion 352:22 353:20 conference 436:13 438:13 confident 452:12 confidential 208:11 confirm 222:10 232:5 240:20 247:7 264:22 279:4,10,11,13,19 279:25 286:3 291:19 295:10 348:8,11,25 358:5 360:8 361:4 382:7 408:21 411:14 482:14 confirmed 477:17 confirming 279:24 279:24 | considerable 409:6 considerate 430:9 consideration 246:5,15 259:10 262:11 289:3,25 291:3,13 319:23 407:22,24 considerations 266:10 269:3 273:8 292:17 320:2 405:9 421:8 considered 230:10 253:16 262:24 270:12 271:11 273:1 293:11,13 296:8 300:22 304:16 315:10 344:8,19,22 345:7 355:25 356:23 | cont'd 212:1 213:1 214:1 216:1 217:1 218:1 contact 397:17,18 398:15 399:20 493:9 contain 464:21 contained 491:4 containing 269:9 content 252:3 375:4,17 455:7 contents 265:15 395:5 context 250:10 259:19 265:11 268:5 270:15 271:7,25 272:10 272:11,14 273:2 278:3 291:24 293:14 300:9 309:7 321:9 |

CONFIDENTIAL

[context - creating]

| | | | |
|---|---|--|---|
| 357:10 359:9 360:9 370:21 372:1 374:6,11,24 376:3,4,13,17,24 387:20 389:9,19 389:20 398:6 399:22 412:9 415:2,14 476:23 488:14 489:1 contexts 293:22 309:14 355:22 continue 230:7,21 231:4,7 232:15 255:4 256:2 269:4 283:15 285:19 286:20 287:9,16 319:14,15 320:6 320:17,21 326:12 329:5 330:4,4 333:18 345:7 400:23 406:16 418:22 425:7 426:24 427:15 428:8 429:5,17 432:5 455:20 458:15 459:10 460:4,25 461:3 463:8 464:1,22 465:3,11,14 466:7 469:14 470:3 477:8 continued 223:24 242:7 272:16 277:25 288:10 289:4 290:2 291:5 291:15,25 309:19 314:10 318:6,11 319:11 320:12 408:7 446:4,4 447:11,18,19 456:12 457:3,3,19 | 458:24 459:21 460:20,24 465:20 465:21 466:1 467:24 469:3,9 474:13 continues 451:24 continuing 431:16 contract 312:9 365:25 404:11,25 406:14,16 407:2 407:15 411:18 415:17,20 421:9 421:22 477:8 488:12 contracts 421:25 422:6 contractual 421:11 contractually 266:19 contradict 475:7 control 246:21 247:14,20,22 343:5 controversial 353:8,9,12 355:8,9 357:5 conversation 227:17 263:18 274:11,14 309:2 397:5 conversations 285:9 288:2 326:18 401:7 463:19 conversion 237:24 239:5,9,18,22 240:6 conversional 353:6 | coordination 417:12 copied 475:1 copy 275:13 440:24 472:15 core 392:21,21 corporate 208:13 324:24 408:18,23 413:7,14 414:22 435:18 452:14,23 458:18,20 459:18 460:16 461:18 correct 230:17 236:5 237:7 256:3 269:6,9 275:24 294:20 296:6 313:3 327:24,25 365:22 368:5,8,9 368:10 395:14 419:5 439:16 442:2 443:8 446:6 447:22 448:9 449:1,11,15,18,23 454:25 455:9 461:5 465:16 466:3,25 467:7 468:1,13 469:4,10 470:8 486:4,7 489:14 491:5 corrected 491:5 corrections 485:20 491:3 493:14,15 494:3,4 correctly 228:21 237:25 238:1 252:22,23 268:25 269:1 276:22 303:12,13 329:6,7 331:19 351:5,6 360:17 | counsel 210:1 211:1 212:1 213:1 214:1,16 219:13 220:2,3,5,9 221:11 222:10 235:13 295:9 330:21 342:1 393:7 461:23 462:19 464:14 468:5 482:2 493:18,21 494:7 counselor 468:23 count 451:20 couple 221:10 259:15 471:15 486:16 course 245:11 259:20 427:22 470:18 court 208:1 209:1 209:21 220:1,8,16 220:19 246:9,11 249:2 251:2 289:18 290:18 311:9 325:24 350:2 361:14 363:12 371:5 393:25 415:4 433:17 444:16 454:16,20 472:6 483:20 cover 256:13 366:17 407:2,2 422:22 423:2 471:13 create 231:20 created 298:11 342:22 409:23,24 446:16 creating 332:21 |
|---|---|--|---|

CONFIDENTIAL

[creation - day]

| | | | |
|---------------------------|---------------------------|-------------------------|---------------------------|
| creation 424:15 | 495:2 | 377:19,21 379:16 | 472:10 473:16 |
| criteria 215:12,17 | cross's 244:20 | 381:2,2,21 383:1 | 487:15 492:22 |
| 216:5 257:21,25 | crutcher 212:5 | 390:16 391:14,19 | dating 319:21,24 |
| 282:7 283:2,5 | 213:5 | 391:20 392:5,9,20 | 320:3,4,12,15,16 |
| 286:7 350:7,8,23 | csr 208:21,21,22 | 401:13 402:1 | 320:20,21 321:16 |
| 351:2,8,16 353:17 | 492:25 | 411:23 414:15 | 321:17,18 |
| 353:22,25 354:2,3 | currently 298:1 | 417:9 418:23 | davis 211:6 212:16 |
| 354:12 355:1,6 | 303:9,16 | 441:10,10,21,25 | 219:22 220:3,5 |
| 362:16 363:20 | cycles 307:2 | 442:8,11,19,24 | 262:20 264:1 |
| 365:5,11 368:21 | d | 443:7,19 444:6,23 | 265:6,13 267:9 |
| 371:3 387:19 | d 215:1 | 445:8,24 446:12 | 268:7 269:7 270:7 |
| 407:22,23 408:2 | dallas 213:10 | 446:20 447:6 | 270:16,25 271:9 |
| 418:4 | damage 430:14,25 | 448:8,24 450:2,7 | 272:1,9,17,24 |
| critical 295:11 | dan 310:3 | 450:12,18 451:4 | 273:17 276:13 |
| 326:2 363:4 | daniel 210:8 214:5 | 451:14,25 452:7 | 277:1 278:2,23 |
| cross 208:13 | 219:17 295:2,4 | 452:11,17 453:6 | 279:9,21 280:6,21 |
| 209:15 215:3 | daniels 259:8 | 454:1,8,23 455:10 | 281:9 282:14 |
| 219:7 220:16 | 261:22,23 286:9 | 456:12 457:4,19 | 283:7,20 284:10 |
| 221:1,7 222:18 | data 227:9 231:7 | 458:24 459:21 | 285:5,22 286:11 |
| 227:9 243:3 245:6 | 232:8 236:9,22,23 | 460:20 461:4 | 286:22 287:11,18 |
| 247:1 248:3 257:3 | 237:7,15,19 | 463:8 465:12,15 | 287:24 288:12 |
| 258:1 260:16 | 238:14 249:8,10 | 467:25 469:3,9,19 | 289:6,21 290:4 |
| 294:1 295:20 | 249:25 252:16 | 470:4,7,20 474:14 | 291:7 292:2 |
| 325:17 326:10 | 254:7 263:8,24 | 477:10,18,22 | 293:16 295:1,9 |
| 327:11 331:6 | 268:21 269:5 | 486:17,23,25 | 297:15 298:21 |
| 350:5 354:11 | 274:25 276:5 | 487:6 488:1,3 | 299:10 300:7,19 |
| 361:17 362:12 | 302:20 312:24 | database 225:7 | 304:20 305:19 |
| 371:10 393:8,21 | 313:13 315:22 | date 257:4 304:9 | 306:7 307:8 |
| 394:18 397:23 | 317:9,11,12,14,18 | 327:23 331:13 | 309:10 311:17 |
| 410:10 416:10 | 318:20,25 319:10 | 362:18 403:11,12 | 312:2 315:7,17 |
| 433:3 436:4 | 319:12,15,16 | 403:16 409:13,16 | 317:23 318:13 |
| 438:12 440:12 | 320:13,23 321:6 | 409:24,24 410:1 | 320:14,24 321:7 |
| 443:2,16,25 445:7 | 321:10,20,23 | 412:23 467:11 | 321:24 324:15 |
| 454:6,21 459:11 | 322:6 326:13 | 484:12 492:19 | 325:3,11 326:3 |
| 461:24 465:9 | 333:10,19,22,23 | 493:16 494:5 | day 223:17 260:6 |
| 467:12 469:7 | 334:4 347:13 | 495:24 | 260:8 295:6,14 |
| 471:11,14 472:3 | 360:5,13 374:15 | dated 216:16 | 301:1,6 302:2 |
| 479:20 480:18 | 374:18,22 375:6 | 244:4 294:4 | 306:13,18 307:23 |
| 481:24 482:17 | 375:24,25 376:1,3 | 337:17 350:6,22 | 308:5 397:21 |
| 483:24 489:25 | 376:4,8,9 377:9,10 | 397:7 402:18 | 480:14 487:16 |
| 491:1,11 493:5 | 377:11,12,12,15 | 410:25 433:22 | 489:25 491:6 |

CONFIDENTIAL

[days - deponent]

| | | | |
|---|--|--|--|
| days 306:14,19 307:1,22 477:10 | 307:11 311:15 330:1 341:22 | 292:21 293:19 355:18 356:13,14 | 292:3 293:17 297:16 298:22 |
| de 312:4 | 342:14 343:15,16 | 358:18 386:14 | 299:11 300:8,20 |
| deal 222:19 431:9 431:20 | 343:20,22,25 365:1 | 414:23 415:9 420:14 468:18 | 304:21 305:20 306:8 307:9 |
| dec 331:15 | deck 294:10,18,21 | degree 355:24 | 309:11 311:18,21 |
| december 331:14 350:22 361:11 362:23 | 295:20 296:1,9 298:11 300:3 304:8 305:9,12 | deliver 437:16,17 439:21 | 312:3 315:8,18 317:24 318:14 |
| decide 234:8 263:23 268:22 270:1 272:15 283:14 326:12 373:1 375:16 | 306:2 307:9,20 308:3 309:16,20 309:25 310:3,10 310:21 312:15 313:18 316:24 | delivered 439:15 denver 212:11 department 473:11 | 320:15,25 321:8 321:25 324:16 325:4,20 335:4 337:10 339:14 |
| decided 222:21 223:8 232:7,15 246:16 250:5,16 255:4 285:16 312:5 341:16 | 320:11 333:24 335:8 361:9,21 362:6,8,10,11 363:16,18 364:7,9 364:25 368:15 | depend 265:15 377:8 390:16 | 340:2 341:6 344:14,17 345:22 346:5 348:8,18 351:12 352:9,23 354:5,16 355:17 356:11 358:15 359:6 360:8 361:4 |
| decides 234:2 | 371:11 380:25 | deponent 209:16 215:2 220:11,18 220:24 227:5 229:12 240:9 243:12 248:5 251:5,13 253:10 254:10,20 255:8 256:22 257:24 258:7 262:21 264:2 265:7,14 267:10 268:8,16 269:8 270:8,17 271:1,10 272:2,10 272:18,25 273:18 276:14 277:2 278:3,24 279:10 279:22 280:7,22 281:10 282:15 283:8,21 284:11 285:6,23 286:12 286:23 287:19,25 288:13 289:7 290:5,16 291:17 | 367:14 369:17 370:2,8,16,24 371:22 372:6,20 373:6,18 374:5,21 375:10 376:3,11 376:24 377:21 378:8 379:8 380:10,25 381:13 382:7,19,25 383:14,25 384:8 385:2,10 386:3,12 387:1,16 388:5,19 389:6 391:3,24 392:15 393:3,10 393:15 395:25 398:7,23 399:25 401:3,15,19 402:7 406:1,21 408:10 408:21 410:23 411:13 412:12 413:24 414:9,20 415:8,22 419:2,16 |
| deciding 269:3 277:24 284:7 286:7 288:10 289:4 290:1 291:4 291:14,24 293:14 340:7,10,12,24 400:23 430:3 | 381:5 387:18 415:10,24 416:5 416:19,21,23 418:17 419:22,24 421:2 422:10,13 | | |
| decision 236:13 246:18 253:19 254:22 256:2 282:2,7 283:1 286:18 287:8 299:5,6 311:25 326:11 358:24 364:7,11,22 365:9 366:10 415:19,23 416:2 430:5 | declare 491:1 decline 248:9 decrease 237:24 default 306:12 486:18 define 291:24 292:3 321:8 355:13 356:16 374:7 450:12 defined 291:21 309:13,22 323:14 386:15 387:19 468:20 defines 355:9 definition 231:16 269:25 271:2,13 | | |
| decisions 263:17 269:13 284:15 287:21 288:1 292:5 300:3 | | | |

CONFIDENTIAL

[deponent - develop]

| | | | |
|---|--|---|--|
| 419:19 420:6,12 420:23 422:18 423:7 424:19 425:3,10,22 426:11,19 427:18 428:11,20 429:2,8 429:20 430:7,18 430:21 431:3,13 432:23 433:6,12 434:16 435:22 436:18,23 437:3 437:11,16 439:25 442:14 444:9 445:2 446:2,8,14 446:22 447:15,24 448:11 449:3 450:11 451:19 452:2,19 453:2 454:12 455:2,25 456:6,17 457:8,22 457:25 458:7 459:2,24 461:7,11 461:21 462:3,11 462:17 463:18 464:9 465:18 466:5,16,19 468:11,17 469:12 470:11,23 471:3 471:16,20 474:6 476:4,14 477:24 479:5,17 480:3,11 481:1,15 482:8,14 482:23 483:17 484:20 488:21 489:7 deponent's 208:15 deponents 492:6 deposition 208:12 209:15 219:6 220:10,21 221:19 244:20 245:1,12 | 492:13 493:19,22 493:24 494:8,10 deprecate 248:21 251:23 252:6,11 253:20 262:18 299:21 300:18 373:10,11 415:19 433:1 456:21 458:2 466:20 467:2,10 deprecated 216:11 222:23 224:14,16 227:15 230:5,20 231:5,24,25 232:2 232:16 234:11 235:4 251:18 253:22 256:25 286:20 287:10,16 288:11 289:5 290:3 291:6,16,25 293:15 298:2,6,18 299:2,3,6 300:2,5 303:10,16,21 308:9 310:25 311:11,16 312:1,6 334:7 340:14 343:8 345:19 372:4 394:3 399:23 408:8 414:15 415:17 420:18 425:8 426:25 427:7,15 428:9 429:6,18 430:4 432:9,19 443:14 445:5,12 449:9,25 450:3 452:3 453:14,15 453:19,21 454:2 464:2 465:4 470:15 | deprecating 250:4 251:25 252:13 399:16 426:15 455:18 deprecation 286:16 300:22 340:16 421:7 446:22 455:4 466:14 488:11 deprecations 292:12 297:21,25 300:14,15 303:7 304:11 342:9,12 342:19,24 346:20 409:3 421:16 435:5 445:10 derek 210:6 219:16 221:8 244:19 248:1 382:21 393:2 398:5,8 416:7 438:1 471:8 493:1 describe 309:4 323:23 396:25 422:3 427:18 436:25 465:2 described 279:7 308:12 365:16,24 423:4 440:15 describing 347:23 description 215:10 216:3 217:3 228:2 281:5 366:23 407:4 descriptions 366:6 424:25 design 267:2 338:8 339:1 designated 324:11 designation 324:19 | designee 271:6 287:6 323:8,23 324:7,24 408:18 435:18 452:15,23 458:20 459:18 460:16 461:18 462:15 detail 366:24 450:14 452:20 489:16 detailed 367:5 details 239:25 285:15 392:1 451:21 determination 287:23 307:16 414:21 determine 249:18 288:3 301:11,14 302:18 323:2 330:12 353:17 359:1 390:14 404:4,23 405:21 429:16 determined 291:22 493:18,22 494:7 determiner 315:10 determining 286:19 287:9,15 292:4 305:5 323:4 405:21 408:7 424:16 463:7 deterministic 418:16 dev 347:12,18 348:19 develop 263:23 316:22 324:24 325:5 343:6 430:15 443:10 |
|---|--|---|--|

CONFIDENTIAL

[developed - document]

| | | | |
|--|--|---|---|
| developed 277:18 285:18 339:12 371:2 429:16 463:15 | 432:3,6,8,17 440:20,22 456:10 457:1,17 458:22 459:5,19 460:2,5 460:18,23 465:8 467:22 469:2,8 486:11 | 293:22 304:14,15 309:14,14 311:23 313:5 322:5 324:17 325:6 354:22 355:21,21 359:9 360:2 364:13 366:25 367:22 374:7,11 374:12 378:4 379:14,19 384:13 389:8 394:19 400:6,13,14,18,19 400:20 404:16,19 407:4 417:13 424:15,21 429:13 429:13 479:11 486:16,25 488:3 | 407:14 425:18 426:7 427:14 428:6 discussing 262:22 380:12 425:6,11 428:13 discussion 223:2 227:14 234:5 243:10 262:17 268:6 286:14 288:15,17 304:3 320:6 326:4 361:6 407:13 429:4,15 444:16 465:10 discussions 223:5 227:22 289:8 344:3,6 426:23 427:9,11,12 429:12 |
| developer 225:10 232:2 233:17 234:3,6 237:18 242:8 255:2,24 256:5,9 257:6 285:12 288:21 304:24 305:7 320:5 345:9 346:15 372:12 373:13 375:1,14 392:22 394:21 395:21 425:17 426:6 432:1 435:12 436:7,10 436:13 440:1 443:11 453:22 456:22,23 459:4 466:10 | developing 486:2 development 262:1 286:6 430:19 device 271:17 314:9 318:4,15 433:1 456:19 463:12 466:6,20 467:3,10 469:13 devices 307:2 318:18,23 364:15 366:14 404:12 407:5,17 459:8 devoted 322:20 323:17 324:4 dgarrie 214:11 dialog 237:23 dialogue 238:15 240:17 248:7 301:13,22,23 319:7 dictionary 414:23 differed 224:20 359:22 421:4 difference 231:1 different 231:2,2 236:21 239:19 251:11 264:20 265:20 266:9 267:1 269:23 273:1 277:6 279:17 281:6 282:1 284:22 287:5 288:25 | differently 335:9 digits 402:13 dinner 393:9 direct 303:5 direction 251:17 492:10 directionally 238:11 directly 289:19 353:20 383:3 384:14 464:17 director 310:3 disagreement 423:9 discovered 242:10 451:6,10 discretion 249:20 discuss 331:1 discussed 242:19 253:17 280:13,16 281:10 289:7,15 291:22 293:20 318:14 354:20 373:9 386:14 | displayed 301:11 displeasure 372:14 distinct 302:13 district 208:1,2 209:1,2 dive 221:11 dloeser 210:15 493:2 doc 244:7 400:5 document 208:6 209:6 238:9,9,10 240:3 243:5,6 244:11,17 245:18 245:21 246:3 247:4 250:10,11 250:15 251:9 252:10,12 260:21 260:25 261:2 264:8,13,15,17,24 265:3,4,8,12,16 269:9 275:14,21 |

CONFIDENTIAL

[document - emitted]

| | | | |
|--|---|---|---|
| 279:11 281:12 285:24 286:12 340:7,9,23 341:1 341:21 362:5,18 363:25 364:3,3 365:17 394:3,7,10 394:25 395:2 396:11 410:5,14 411:10 413:2 414:1,2 428:21 434:7 documented 256:9 257:5 documents 221:21 221:24 222:4,8 235:6 240:11 242:21 289:11 292:10 335:5,14 341:19 348:20 349:13 401:8 417:15,18 423:12 424:20 425:4,16 426:5,12 428:12 docx 244:13 doing 236:15 264:23 267:17 297:12 334:23 337:21 338:22 352:15 353:1 double 474:8 doug 243:24 311:1 327:6 douglas 433:22 draft 216:7 235:15 294:9,18 363:5,21 368:23 drafted 235:19 dramatically 451:1 drastically 359:22 421:4 | drat 215:19 draw 353:20 drive 212:18 268:22 272:7,8,18 273:2,2,6 drives 273:15 drop 372:17,23 373:2 374:1 due 307:2 308:23 310:7 316:4,23 330:1 449:20 duffy 327:14 dunn 212:5 213:5 219:19 duties 353:3 e e 211:7 215:1,8 216:1 217:1 308:24 310:8 493:9,12 494:1 495:3,3,3 e.g. 307:2 314:19 319:21 322:10 earlier 232:5 270:10 288:18 291:22 293:20 308:13 309:11 338:14 378:5 389:7 412:23 434:7 487:13,16 early 305:12 403:20 easier 226:2,21 351:4 ebay 382:2 383:23 386:9 ecosystem 246:24 247:16 263:21 284:1 285:12 288:21 347:15,21 348:5,15 349:5,9 | 435:13 ecosystem's 305:7 eddie 327:16 341:7,14 342:10 411:1 413:19 428:4 433:21 434:21 439:8,9 463:23 464:16,19 473:6,14 477:2 478:6 484:9 485:22 edges 477:10 editors 475:5 edits 350:17 edits.pptx. 350:8 educated 242:12 242:15 effect 288:23 effects 347:14,20 348:4,14 349:4 efficient 259:24 effort 241:3,8,12 241:19,22 335:6 eight 304:10 eighth 310:20 either 408:22 481:10 elia 303:4 472:10 473:1,2,3,15 478:5 email 215:11 216:16,20 217:4 243:15,23 245:11 245:22 256:13 259:6 260:17,23 262:3,9,17,22,24 263:18 264:12,18 265:2,5,8,11 266:2 267:22,24 269:18 270:15,19 272:21 273:4 274:9,9,16 274:19 275:22 | 276:20 277:7 278:4,8,14 279:5,7 279:10 280:14,19 281:19,23 283:9 284:17 286:13 288:15,17 294:3,9 294:17 327:12,23 328:2 331:8,13 332:19 333:3 335:8 337:17 338:14,16,20 342:20 348:9 350:5,11,20,21 352:25 353:5 354:20 358:23 359:15 361:7,10 361:18 410:24 411:7 412:13 413:4,18,22 416:4 422:22 423:3,8 427:21 428:12 433:20 434:2 435:2,23,25 458:12 463:21 464:12,15,19,21 464:25 472:8,9 473:13,20 475:1 477:1 478:5 480:21 482:18,24 484:1,7,8,12,19 485:8,13 486:8 487:5 emails 428:5 463:18 464:7,8,9 emit 450:7,17 451:25 452:17 453:7 455:5,16 emitted 321:4 322:4 450:2,19 451:14 452:11 454:1 |
|--|---|---|---|

CONFIDENTIAL

[emitting - exhibit]

| | | | |
|--------------------------|---------------------------|--------------------------|--------------------------|
| emitting 451:4 | england 208:15 | 438:24 439:1,8,10 | 476:19 478:10 |
| emma 210:9 | 209:17 219:1 | 439:12 | examples 271:11 |
| emphasizing | enhanced 252:20 | events 391:18 | 271:15,20,21,24 |
| 475:3 | 255:3 256:1 | 437:4 450:15 | 272:4 322:24 |
| employed 256:16 | ensure 241:4,13 | 453:12 | exception 308:22 |
| 256:18 | 241:22 343:3 | everybody 445:13 | 310:6 312:8 |
| employee 352:4,15 | entered 229:7 | 450:4 | 421:15 431:7 |
| 352:18,24 371:12 | entire 323:17 | evidenced 251:17 | exceptions 322:21 |
| 492:17 | 324:4 326:2 | 282:22 | 323:19 324:5 |
| employees 283:13 | 397:20 398:17 | evident 262:8 | 345:3 411:17 |
| 395:12,17 428:13 | entirely 298:2,6 | evolution 235:21 | exchange 374:15 |
| 462:1 463:1,2,3,4 | 298:18 377:14 | ewright 210:18 | 374:18,22 375:24 |
| 463:5,6 | entities 228:14 | exact 229:15 | 377:19,21 379:16 |
| empowered | 341:18 389:11,23 | 307:16 359:20,20 | 391:14,21 392:9 |
| 249:10,25 | 421:24 425:4 | 359:20 394:13 | 392:20 |
| enable 271:18 | 429:23 459:7 | exactly 227:6 | exclamation 260:1 |
| 320:6 330:4 343:7 | entry 396:7 | 230:11 252:17 | executed 491:6 |
| 346:17 | eod 327:18 | 255:20 257:24 | execution 295:23 |
| enabled 340:4 | equitable 296:15 | 266:16 267:18 | exempt 329:3 |
| 347:2 | errata 493:14,16 | 280:16 302:7 | exemption 342:14 |
| endeavoring | 494:3,5 | 315:19 316:7 | 343:15,21 344:10 |
| 334:17 | esq 493:1 | 330:6,18 361:4 | 359:1 360:14,24 |
| ended 359:22 | essence 411:16 | 377:11 380:12 | 365:12 399:2 |
| 403:11 | essentially 306:23 | 381:20,22 382:7 | 418:14,16,21 |
| energy 297:4 | established 232:18 | 392:5 405:6 | 422:4,8,12 424:4,7 |
| enforce 303:23 | 468:20 | 440:23 444:10 | exemptions |
| 478:23 483:7 | et 258:25 | 451:15,21 | 215:18 216:6 |
| enforcement | evaluate 381:8 | examination 215:2 | 343:24 344:5,22 |
| 305:24 | 384:4 | 221:5 | 359:11 362:16 |
| engagement | evaluated 347:20 | examined 221:2 | 363:20 365:5,11 |
| 246:23 247:16 | 348:4 380:21,23 | example 224:22 | 368:22 371:3 |
| 372:16 379:15 | 382:11 384:23 | 226:11,12,14 | 411:22 418:9 |
| 388:12 | 428:6 | 230:14 238:21 | 419:12,13 420:2 |
| engages 352:4 | evaluating 299:7 | 239:3 263:25 | 423:5 424:16 |
| engineer 303:3 | 377:17 380:7 | 271:17 272:4 | 427:11 428:14 |
| 343:11 | 384:22 392:11 | 273:20 300:24 | 431:8,19 445:9 |
| engineering | evaluation 385:24 | 321:15 328:10 | exercise 281:24 |
| 326:25 328:3 | evening 471:14 | 356:18,25 380:17 | exhibit 215:11,16 |
| 330:12,16 473:3 | event 304:18 | 395:20 403:13 | 216:4,11,16,20 |
| engineers 302:23 | 329:9 436:15,18 | 428:3,17 430:13 | 217:4,12,14,16,18 |
| | 437:1,4,8 438:20 | 430:24 463:23,24 | 217:20,22,24 |

CONFIDENTIAL

[exhibit - facebook]

| | | | |
|--|--|--|--|
| 218:3,5,7,9 235:14 235:16,18 243:2 243:14 244:18,22 244:25 245:4,7,15 245:22 256:20,21 259:2,3,3 260:4,18 293:24,24 294:3 294:23 295:2,19 325:10 327:10,12 331:4,5,8 349:20 349:21 350:1 361:9,12,13 362:4 362:7 363:8,10,11 392:25 393:22,23 393:24 410:21,22 413:21 416:10 433:15,16,19 441:1,2 471:6 472:4,5,22 483:13 483:19,23,25 exhibits 217:10 218:1 242:24 244:20 260:2 exist 271:19 279:12 335:13 451:20 existed 335:5 412:22 456:19 467:4,11 existence 458:3 466:22 existing 266:21,24 267:6,12 296:13 303:23 305:15,17 305:18 306:4 333:13 338:10 400:2,4,11 409:5 412:22 424:9 432:2 exists 276:15 279:11 | expect 357:19 expectation 267:11 308:4 329:22,23 expected 359:20 459:25 experience 249:17 254:24 292:14 318:23 320:7 356:2 357:1 374:25 385:25 476:20 478:11 experiences 228:10 248:19 249:15 293:6,8 318:22 357:2 460:1,23 466:9 expert 384:9,19 386:17 expertise 375:12 explain 224:17,17 225:2 235:8 238:2 248:15 250:13 266:14 302:4 304:1 308:8 347:16 391:20 392:4 411:16 462:23 470:1 475:17 488:13 489:1 explained 223:21 448:11 explaining 467:19 explains 307:6 explanation 249:22 460:7 462:6 explicitly 237:19 414:16 exposes 252:15 253:6 | express 236:21 237:7,9 expressed 249:11 249:14 250:1,7,19 309:5 expression 300:5 309:9 expressly 237:15 extended 488:11 extension 235:10 289:12 292:15 306:25 307:13 308:12,15 342:14 343:15,21,21,24 359:2 360:14,25 365:21 366:2 399:2 413:12 418:17 422:11,16 extensions 215:19 216:6 289:15 292:11 307:6 308:20 336:17 340:16 341:18 344:4 345:3,24 359:11 362:17 363:21 365:5,11 368:22 371:4 411:17 418:5 428:14 extent 352:21 external 238:10 extra 225:1 extremely 252:14 253:6 304:18 eyes 279:25 | 446:16 457:16 459:3 460:12 466:15 469:1 f8s 439:20 face 233:19 359:6 402:24 403:3,6 facebook 208:3 209:3 212:4 213:4 214:16 215:17 216:4 219:9,20 220:15 222:20 223:8 224:23 225:4,5,6,10 226:1 226:5,7,15,25 228:8 229:4 231:21 232:6,15 233:8,10,17,20,23 233:24 234:2,5,6,7 234:7,11,23 236:16,17 237:2 240:4 246:16 248:7 249:5 250:5 250:16 251:10,14 251:15 253:8,19 254:1,4,17 255:4 256:1,16,18 257:5 257:18 261:6 262:18 264:12 267:5,16 269:6,20 269:24 270:6,22 270:24 271:7,14 271:18,24,25 272:7,8,19,22 273:16,25 274:3,4 274:7 279:5 280:1 280:2,4 283:12 284:6 287:14 288:9 291:23 292:7,19 293:3,14 296:23,24 297:6,8 298:5,15,19,23 |
| | | f | |
| | | f8 216:11 394:4 436:10,12,13,23 437:12 438:13,16 438:23 439:14,18 441:5 444:21 | |

CONFIDENTIAL

[facebook - feel]

| | | | |
|--|---|---|---|
| 299:7,20 300:17 301:4,22 302:22 304:19 305:1,20 308:24 309:3,4,8,9 310:8 311:8,8 314:7 315:5,6,12 316:10 317:21,24 318:17,23 319:4,7 320:3,5 322:12,23 323:6,8,8,23 324:7 324:13,14,17,22 324:25 326:22 328:8 330:9 331:22 333:16 334:16,20,24 335:2 337:5,6 339:12,25 341:2,3 342:18,23,25 343:20 344:10 345:2 346:15 347:20 348:4,13 348:16 349:4 351:15,19,22,24 352:1,4,6,15,15,18 352:24 355:12 356:6,7,21 358:11 359:3 360:24 364:1 370:11,12 371:2,13,19 372:12,22 373:12 373:15,25 374:8 374:19,22 375:1,3 375:14,16,22 376:6,14,19 377:4 378:4 380:5,21 381:8 382:3,11 383:10,19,21 384:3,4,6 385:25 386:8,24 387:2 388:3,9 389:10,12 389:13,17 390:7 | 390:13,19,22,24 390:25 391:12 392:11,20,22 394:10,18 395:7 395:10,11,16 396:1 400:20 401:9,22 402:2,4 405:21 407:8 408:17 412:8,13 412:15 413:8 414:16 415:1,9 417:19 420:1,13 421:17 422:7 423:18 427:13,19 427:21,24 428:13 430:5,14,18,25 431:9,15,20,24 432:3,6,7,16 433:3 433:6 434:3,5,14 434:18,25 436:7,9 436:14,16,21 437:1,21 438:16 439:22 442:1 443:7,11 451:24 454:9,24 455:11 455:22 456:9 457:16 458:21 459:3,7,14,19 460:5,9,11,17,22 461:3,22,25 462:1 462:1,12,20,23,25 463:2 465:13,19 465:24 466:8,12 466:23 467:17,19 467:22 468:24 469:7,12 470:5 473:4 476:1,5,20 476:21 478:10,11 485:1 486:13 493:4 495:1 | facebook's 208:12 225:8 228:6 229:2 237:21 247:9,11 250:20 251:7 253:11 254:22 268:4,9 270:4 271:5,5 276:5 283:18 287:6,22 289:2,23 291:1,11 323:22 324:6,24 339:15 345:17 356:12,16 375:7 383:15 390:5 412:19 419:11,20 422:19 435:18 452:14 453:21 458:17,20 459:17 460:16 476:5 486:19,23 487:7 488:1 fact 247:11 328:16 329:16,25 426:23 474:2 476:2 fair 249:22 267:8 304:17 310:5 311:24 334:20 354:2 357:9 362:22,22 363:17 367:3,9 382:4 384:21 385:22 386:7 430:2 436:25 468:21 478:8 fairly 472:9 fairness 478:19 483:1 fall 266:5,7 falling 281:25 282:6,25 familiar 417:14 441:16 | familiarity 309:5 309:5 far 396:3 425:14 426:4 fast 338:8 339:1 339:11 404:11 407:5,17,20 fb 215:13,14,21 216:13,14,18,23 216:24 217:6,7 268:22,24 270:3 273:5,6 312:9 333:4 396:19 485:6 487:23 feature 230:8 features 224:19 303:10,16,21 310:25 311:11,16 312:1,6 404:5,24 405:22 feb 397:21 403:20 february 397:7 410:25 413:23 419:25 420:1 federal 492:13 494:1,8,9 fedorov 243:25 327:7 feed 252:14 feedback 246:17 294:13 327:18 485:21 feeds 477:18,21,24 feel 253:10 293:18 293:18 294:11 356:11,15 358:20 373:21 383:17 385:2,5 431:23 435:9 447:24 458:7,8 461:11,12 |
|--|---|---|---|

CONFIDENTIAL

[fell - format]

| | | | |
|---------------------------|---------------------------|-------------------|--------------------------|
| fell 345:11 | 418:13 435:1 | 278:2,23 279:9,21 | 405:24 406:20 |
| fewer 238:13 | five 367:22 379:10 | 280:6,21 281:9 | 407:11 408:9,20 |
| fifth 368:11 441:6 | 388:23 471:19 | 282:14 283:7,20 | 411:12 412:10 |
| figure 222:17 | flag 353:6 | 284:10 285:5,22 | 414:8,19 415:21 |
| 280:3 281:25 | flipboard 314:20 | 286:11,22 287:18 | 419:1,15,18 420:5 |
| 335:9 | 315:4,14 | 287:24 288:12,25 | 420:22 421:25 |
| file 244:12,13 | floor 214:8 | 289:6 290:4 291:7 | 422:17 423:6 |
| fill 398:2 | flux 359:20 | 292:2 297:15 | 424:2,18 425:2,9 |
| final 286:18 287:7 | focus 252:20 255:3 | 298:21 299:10 | 425:21 426:10,18 |
| 311:14 351:1 | 256:1 333:9 | 300:7,19 304:5,20 | 427:17 428:10,19 |
| 353:21 354:6,7 | folder 259:25 | 305:19 306:7 | 429:1,7,19 430:6 |
| 355:5 | 260:2,6,8 295:6,14 | 307:8 309:10 | 430:17,20 431:12 |
| finality 488:10 | folks 331:25 361:5 | 311:17 312:2 | 432:22 433:5,11 |
| finalizing 342:9 | 391:4 | 315:7,17 317:23 | 434:15 435:21 |
| 353:5 | follow 317:21 | 318:13 320:14,24 | 436:17,22 437:10 |
| finally 448:15 | 395:9 397:14 | 321:7,24 322:5 | 437:15 439:24 |
| financially 492:16 | 398:13 440:7 | 324:15 325:3 | 442:13 444:8 |
| find 278:6 302:21 | followed 314:6,13 | 335:3 337:9 | 445:1 446:1,7,21 |
| 302:24 337:2 | 314:22,24 317:25 | 339:13 340:1 | 447:14,23 448:10 |
| 348:16 410:15 | following 275:1 | 341:5 344:16 | 449:2 450:10 |
| findings 478:7 | 360:14,15 486:12 | 345:21 346:4 | 451:18 452:1,18 |
| fine 243:21 325:14 | follows 221:3 | 348:7,17 351:11 | 453:1 454:4,11 |
| 401:21 | 289:22 290:25 | 352:8 354:4,15 | 455:1,24 456:5 |
| finish 382:20 | 291:10 360:20 | 355:16 356:10 | 457:7,13,21,24 |
| first 222:7 229:24 | 432:15 480:5 | 358:14 359:5 | 458:6 459:1,23 |
| 235:21 256:4 | 493:8 | 360:7 361:3 | 461:6,9 463:17 |
| 261:1 266:1,11 | font 396:17 | 367:13 369:16 | 465:17 466:4,18 |
| 268:1 274:10 | fonti 211:5 | 370:1,15,23 | 468:2,6 469:11 |
| 288:24 295:21 | food 238:24,24 | 371:21 372:5,19 | 470:9,22 471:2 |
| 296:18 302:9 | force 409:23 | 373:5 374:3,20 | 474:5 476:3,13 |
| 303:8,22 311:9 | foregoing 491:2 | 375:8 376:2,10,23 | 477:23 479:4,16 |
| 312:15,21 313:12 | 492:4,6,10,12 | 377:20 378:7 | 480:24 482:7,13 |
| 313:22,24 317:17 | forget 416:8 | 379:7 380:9,24 | 482:21 488:20 |
| 317:18 318:3 | form 229:15 | 381:11 382:6,16 | 489:6 |
| 327:14 328:1 | 231:18 251:4 | 382:23 383:13,24 | formal 340:6,9,23 |
| 333:20 362:10 | 255:7 262:20 | 384:7 386:2,11,25 | 340:25 341:21 |
| 363:15 364:21,23 | 264:1,17 265:6,13 | 388:4,18 389:4 | format 263:23 |
| 365:12 366:12 | 267:9 268:7 269:7 | 390:10 391:2,23 | 265:20 267:5 |
| 368:1 369:2 | 270:7,16,25 271:9 | 392:13,20 395:24 | 272:15 278:21 |
| 406:12 410:6 | 272:1,9,24 273:17 | 398:4,21 399:24 | 354:14,21,24 |
| 414:1,12 417:2 | 276:13 277:1 | 401:2,14 402:6 | 362:20 422:4 |

CONFIDENTIAL

[format - gatekeeping]

| | | | |
|---|---|--|---|
| 424:16 428:18 formatting 360:18 395:8 forth 492:6 forthcoming 475:23 476:1 forward 236:25 295:9 304:24 310:20 328:12 338:10 378:21 400:10 412:5 forwards 452:6 found 348:12 356:4 477:4 four 366:11 379:14,19 402:13 fourth 366:13,16 368:9 382:1 frame 241:18 293:21 354:16 359:18 408:1 421:17 framed 428:15,17 framework 264:4 277:18,19,23 278:9,10 279:6,14 279:20 280:3,8,13 280:15,17,18,23 281:1,3,13,15,17 282:5,12,17,19,20 282:24 284:6 285:18 286:1,1,18 287:3,8,14,20 350:12 428:25 429:10,15 framing 240:16 293:21 315:11 framings 424:21 frcp 494:1 frequently 233:8 | friend 216:21 223:4,6,9 224:11 230:14,21 232:7 232:16 233:14,16 235:3,3,10 236:9 236:23 237:7,15 237:19 239:23 248:22 249:18,23 250:4 251:18,23 251:25 253:16 259:11 262:19 263:8,15,24 268:21 269:5 272:16 274:23 275:17,19 276:11 277:25 284:8 285:20 286:8,21 292:13 302:3 318:11 321:20 326:13 333:19,21 376:21,22 377:1 401:13 402:1 411:23 414:14 426:16,20 430:13 430:24 432:9,19 440:17 443:14 445:4,10,12,15 446:23 448:15 449:8,24 450:2,3,7 450:8,18 451:4,14 451:25 452:2,11 452:17 453:6,8 454:1 455:4,13,18 456:12 457:3,19 459:21 460:20,24 461:4 463:8 465:15 466:1,8,14 467:25 469:3,9 470:3,14 472:11 474:14,17,17,23 474:24 476:9 | 478:24 479:1,7,9 479:13,18 480:8 480:22 481:19 482:4,9 483:9 friend's 251:22 friends 236:17 237:10 249:8,13 249:17 250:7,18 251:22 252:3,3 253:14 259:1 275:9 282:4 283:15 300:24 312:23 313:1,13 315:22 317:9,17 318:20,25 319:2,9 319:12,14,16 320:13,22 321:2,6 321:9,22 322:3,6,6 329:5 330:5 333:23 334:4 375:5,20 376:9,16 377:4 392:19 414:14,17,18 415:2 441:8,10 447:20 448:4,14 449:8,13,17,20 450:12,16,16 451:6,10,13 453:12,13,18,19 458:24 465:12,21 469:14 473:23 474:3,7,20,21 475:3 477:9,18,22 479:6 487:1 488:3 488:23 front 259:4 full 275:8,11 296:19 325:5,5 326:20 fully 228:24 265:3 284:13 | fun 480:15 function 320:9 396:5 412:24 451:22 functional 394:18 functionality 252:19 255:3,25 functioned 234:8 392:6 455:3 functions 453:3 further 220:7 263:3 367:18 378:16,23 379:3 421:2 451:2 487:13 492:12,16 future 267:14,17 fw 411:3 g game 402:24 403:3,6 games 333:11,11 364:14,14 366:12 366:13,18,20,24 367:4 garrie 214:5 219:24,25 290:12 290:14,22 291:8 295:8,16 325:16 325:22,25 393:6 393:13 461:14,23 462:5,14,18 464:6 464:10,13 468:3,8 468:12,21 480:1 480:25 481:3,5,7 481:23,25 482:1 gated 253:23 255:14 gatekeeper 255:6 255:9 328:7,8 gatekeeping 254:15 |
|---|---|--|---|

CONFIDENTIAL

[gather - graph]

| | | | |
|--------------------------|-------------------------|--------------------------|---------------------------|
| gather 347:20 | 457:3,18 458:23 | 485:4 487:12 | gracefully 293:10 |
| gating 231:19 | 459:21 460:19 | 489:16 490:3 | grant 233:5,18,20 |
| gdp 237:23 301:12 | 466:1 467:24 | goal 246:22 | 233:21 236:14 |
| 301:17 | 469:3,9 475:10 | 247:15 296:14 | 237:2 248:9 |
| general 214:16 | 478:7 492:11 | goes 259:14 396:4 | 276:17 288:10 |
| 281:23 321:18 | gk 328:6,8 | going 223:21 | 291:25 301:24 |
| 374:22 437:17 | gks 328:4,5 | 231:20 235:11 | 312:8 359:1 |
| generally 223:2 | go 225:16 234:16 | 242:24 243:1,15 | 411:17 413:11 |
| 425:10 437:24 | 234:17 245:3 | 244:16 249:3 | 422:11 |
| 443:10 | 248:11 255:11 | 285:1 289:17 | granted 228:11 |
| generate 290:9 | 256:19 258:8 | 295:19 297:3 | 239:7 253:3 |
| generated 395:3 | 260:9 261:1 262:2 | 306:15 325:11 | 255:21 257:21 |
| george 243:24 | 262:9 266:1 | 328:11,12,12 | 258:23 289:12,15 |
| getting 248:14 | 276:21 278:13,24 | 330:20 340:13 | 292:12,15 308:20 |
| 335:2 479:21 | 279:22 280:24 | 347:9 349:1,1,22 | 310:13 319:6 |
| gibson 212:5 | 284:4,5 290:20,24 | 352:19,20 362:8 | 322:2 336:17 |
| 213:5 219:19 | 296:7 303:3,6 | 363:8 393:22 | 339:21 341:18 |
| gibsondunn.com | 312:14,15 316:11 | 396:17 399:11 | 345:25 418:14,17 |
| 212:13,14,21 | 316:15,17,19,21 | 400:10 409:4 | 418:21 422:5 |
| 213:12,19 | 322:8 325:2,9 | 411:17 419:11 | 424:17 427:10 |
| give 220:21 224:8 | 330:9,11 331:3 | 423:18 437:21 | granting 215:18 |
| 228:24 230:9 | 333:2 335:2,12,12 | 438:1 440:2,6,16 | 216:5 254:24 |
| 252:1,1,8 253:11 | 335:18,19,23 | 440:20 441:19,19 | 362:16 363:20 |
| 261:7,23 270:8 | 337:16,17,24 | 442:6,7,17,17,22 | 365:5,11 368:22 |
| 271:10,12 272:3 | 341:3 344:14 | 444:4,4,21,22 | 371:3 418:9 |
| 273:18 292:25 | 347:7,9 349:20 | 448:17 455:19 | 419:12,13 420:2 |
| 302:6 345:2 | 361:8,24,25 362:8 | 463:19 464:14 | 431:8,19 |
| 392:16 395:25 | 362:9 363:7,8,22 | 466:7 469:18,23 | granular 236:1,5,7 |
| 409:16 420:12,23 | 364:5,24 366:9,16 | 470:6,19 471:5 | 236:8,11,19,24 |
| 434:23 444:9 | 368:14,25 377:23 | good 219:15 220:2 | 237:5,13 238:3,14 |
| 481:21 485:22 | 378:12,21 383:20 | 220:2 221:7,9 | graph 222:23 |
| 487:20 | 383:25 388:11 | 222:19 246:14 | 223:10 224:20 |
| given 224:10,13 | 390:25 393:11,14 | 252:19 255:2,25 | 226:25 228:7 |
| 235:9 290:7 305:4 | 396:22 400:5,12 | 273:7 301:19,19 | 229:3,9 230:15 |
| 307:1,6,13,17 | 403:7,15 409:9 | 305:4 320:4 | 232:8 257:1 |
| 308:4,9 337:14 | 410:3 416:10,21 | 325:20 375:3,20 | 299:15 319:18 |
| 344:20 359:14 | 427:3 438:6 441:6 | 375:21,21 393:1 | 320:10 340:16 |
| 361:7 374:25 | 443:25 458:18,19 | 437:17,19,25 | 347:23 369:7,23 |
| 386:19 421:11 | 468:5,23 471:5 | 471:7 489:23 | 370:22 376:4 |
| 429:24 439:19 | 473:12 482:1 | grab 393:9 | 425:19,19 426:8,8 |
| 445:7 456:12 | 483:12 484:7 | | 432:10,21 438:18 |

CONFIDENTIAL

[graph - i.e.]

| | | | |
|---|---|--|--|
| 438:20 443:3,6 454:7,22 455:11 455:13,21,21 456:13 457:4,19 458:25 459:22 460:21 461:4 463:9 464:2 465:12,16 466:2,2 467:25 469:4,10 470:4 graphic 351:3 great 249:15 278:16 320:7 350:12 438:5 459:9 greater 246:23 247:15 group 264:2 283:22 288:19 302:15 310:11 326:15,20 327:1 331:22,23 332:5 394:11,11 395:6 395:10,10 397:15 397:18 398:16 401:10,23 407:6 407:19 422:8 434:12 475:19 476:22 groupon 319:22 groups 265:20 395:15 399:20 450:15 453:12 guarantees 455:15 guess 264:4 329:11 425:25 gupta 243:24 327:15 | h h 215:8 216:1 217:1 495:3 half 325:12 339:9 hand 220:17 257:4 handled 493:8 hands 403:19 hannah 212:7 219:22 happen 348:9 403:17 463:19,20 happened 241:25 255:16 257:12 267:16 315:19 318:8 322:17 328:16 334:10 335:10 336:6 403:14 420:21 421:5 423:14,15 429:12 439:17 450:25 happening 314:14 344:24 359:23 424:22 happiness 326:1 hard 251:13 264:22 265:1 266:16,16,17 268:8 270:20 273:18 281:19 284:12,12 290:5 292:23 316:8 354:5 372:6 378:8 378:9 390:14 394:12 395:9 396:7 475:5 476:6 harder 225:25 226:6,7,13 harshdeep 342:10 hashed 225:3 329:4 | head 262:1 271:22 322:17 444:11 header 297:20 313:22 377:25 394:3 heading 240:25 241:2 245:18 248:12,21 249:1 252:5,11 266:1 267:25 280:25 300:15 302:1 303:7,8 310:21 330:24 333:4,6,8 338:1 364:7 369:18 414:1 486:22 487:18,25 488:18 headings 296:9 health 246:23 247:16 hear 251:3 258:8 440:11,13 456:3,6 heard 289:14 held 251:8 hello 350:12 help 265:10 272:11 322:22 323:22 324:6 351:3 360:5,12,23 389:18 390:1 434:4 helped 347:13 348:10 helpful 485:3 helping 263:22 helps 324:9 437:17 hereto 350:3 361:15 363:13 394:1 433:18 472:7 483:21 | hey 351:1 hi 435:3 473:20 high 387:11,12,20 388:2 404:11,25 406:8,10,13 407:16 411:2 highest 388:20 highlight 403:24 highlighted 353:7 355:7 highly 317:13 hipal 276:9,15 302:19 317:6 historically 439:19 hoc 287:23 hold 382:20 423:24 honestly 339:3 hope 299:16 hoped 294:11 hoping 299:17 479:21 hour 325:12 438:1 483:15 hours 427:23 hregan 212:14 htc 318:4 https 264:9 huge 296:19,21 huh 338:4 hurren 331:9,18 331:19 332:14 hyperlink 266:2 hyperlinked 265:4 hypothetical 239:3 i i.e. 239:5 298:1 394:19 424:5 |
|---|---|--|--|

CONFIDENTIAL

[ian - inference]

| | | | |
|--------------------------|---------------------------|--------------------------|---------------------------|
| ian 214:16 219:20 | ids 224:23,24 | 268:13 383:9 | included 236:17 |
| idea 249:23 310:8 | 225:3,13,14 226:1 | impacts 348:22 | 278:16 318:25 |
| ideas 269:10 | 226:2,11,13,19,24 | impending 409:5 | 334:14 426:15 |
| identifiable | 389:22 417:3 | implement 307:21 | 478:1 493:14 |
| 320:19 321:3 | ii 208:17 215:3 | implementation | 494:3 |
| 322:4 | 219:7 493:5 495:2 | 361:2 432:10,20 | includes 486:25 |
| identification | illustrated 238:21 | 465:12,16 | 488:2 |
| 323:18 350:2 | ilya 327:7 433:22 | implemented | including 232:16 |
| 361:14 363:12 | 441:9 | 254:18 264:6 | 236:23 262:19 |
| 393:25 416:24 | imagine 238:23 | 285:15 289:1 | 331:25 409:21 |
| 417:21 418:6 | ime 259:7 261:12 | 319:4,18,19 | 426:16 450:25 |
| 433:17 472:6 | 262:4,10 264:18 | 334:18 340:4 | incognizant |
| 483:20 | 280:19 286:9 | 421:18 425:20 | 414:17,18 415:2 |
| identified 221:13 | 294:4 331:9 | 426:9 430:1,10 | incorporate |
| 221:22 226:25 | 341:14 410:25 | 435:20 455:12,21 | 294:14 |
| 245:22 260:18 | 411:7 413:19 | 456:14 457:4,20 | incorrect 474:3,6 |
| 261:3 282:1 298:5 | 416:12 422:23,25 | 458:25 459:22 | increase 369:8,23 |
| 298:15 299:20 | 423:3 428:3 | 460:21 461:5 | 370:22 |
| 313:17,24 322:13 | 438:25 | 463:9 464:3 466:3 | indefinitely |
| 365:20 366:3 | immediately | 468:1 469:4,10 | 308:23 310:7 |
| 367:10,23 368:11 | 271:22 302:10 | 470:4 | index 396:4 |
| 377:19 378:5 | 303:3 | importance 411:1 | indicate 338:16 |
| 379:20 387:6 | impact 262:22 | important 250:9 | 387:13 405:20 |
| 400:9 401:10,23 | 263:4,6,21 266:24 | 256:6 257:15 | 435:17,23 489:3 |
| 402:8 404:16 | 267:12 268:17 | 278:4 284:17 | indicated 221:22 |
| 417:3 | 281:7 283:25 | 285:15 304:7,18 | 280:19 308:16 |
| identifies 266:11 | 285:11 288:20 | 311:19 326:1 | 330:24 332:20 |
| 315:5 418:20 | 292:13,14 349:7 | 409:1 430:5 | 361:20 421:17 |
| identify 219:13 | 349:13 353:10 | 431:10,21,24 | indicates 244:7 |
| 226:3 276:11 | 355:10,13,19,20 | 436:15 439:22 | 264:5 300:25 |
| 280:4 301:4 302:5 | 356:7,15,20,23 | impossible 387:16 | 355:6 370:17 |
| 317:4 324:9 | 367:2 370:18 | impressions 302:2 | 383:5 |
| 335:24 341:3 | 372:11 373:24 | improve 297:17 | indicating 400:12 |
| 380:5 386:8,9 | 374:1 378:13 | 339:19 435:14 | 405:3,4,5,8 407:21 |
| 389:14 390:7 | 380:16 381:7 | improvement | 482:11 |
| 399:5,7 404:25 | 382:13 384:10 | 327:18 | indication 423:3 |
| 406:13 407:24 | 385:13 409:5,25 | inability 404:11 | 442:10 |
| identifying 317:8 | 416:25 430:10 | 407:5,17,20 | individual 314:25 |
| 333:17 385:23 | 431:5 | include 292:19 | individuals 462:20 |
| 397:3 404:18 | impacted 266:22 | 318:24 376:9 | inference 377:14 |
| | 266:25 267:7 | 381:25 | |

CONFIDENTIAL

[inferring - issues]

| | | | |
|---------------------------|---------------------------|---------------------------|--------------------------|
| inferring 377:12 | 488:13,24 489:3,8 | 273:5 293:9 | introduce 329:2 |
| influence 371:16 | informed 436:7 | 346:14,17,19 | 329:16 393:22 |
| 371:20 379:15 | 462:1 | 356:3 384:20 | 433:14 |
| 387:7,19 388:3,7,9 | informing 398:1 | 392:2,5 409:6 | introduced 236:20 |
| influencing 368:1 | initial 424:1 | 412:22 420:17 | 269:12 306:18 |
| 378:17,24 | initials 488:6 | 422:15 424:9 | 307:23 315:16 |
| info 278:16 473:24 | 489:12 | 427:1,5 431:13 | 329:18 330:3 |
| 474:3,21 475:4 | initiates 444:16 | 432:2 433:1 | 343:1 448:9 472:3 |
| 486:12 | initiative 292:9 | 449:16 456:18,19 | introducing 362:4 |
| information | 334:1 | 459:8 460:4 466:6 | introduction |
| 225:25 226:8,21 | input 328:9 | 467:4 469:13 | 237:5 247:2 268:6 |
| 226:23 233:10 | inside 225:8 328:7 | intended 299:21 | 299:15 304:17 |
| 236:14,18 237:2 | 462:3 | 309:24 345:15 | 334:19 351:9,17 |
| 237:10 238:18 | install 369:11 | 414:6,10 | 356:8 359:13 |
| 239:2 249:13,19 | installed 249:9,18 | intending 250:25 | 382:13 438:18 |
| 250:7,18 251:22 | 436:6 | 300:17 | investigate 454:3 |
| 252:3,17,18 253:7 | instructing 480:1 | intent 249:11,14 | investigated |
| 253:14 254:7,13 | 481:3 | 250:1,8,19 482:15 | 420:24 |
| 254:16 258:3 | instrumentation | intention 328:21 | invite 249:16 |
| 265:8 276:16 | 316:5,23 317:2 | interacted 455:6 | inviteable 450:16 |
| 301:14 302:22 | inte 345:4 467:3 | interested 283:12 | 453:12,18 |
| 310:13 319:5,6 | integrated 241:5 | 492:17 | involve 376:15 |
| 320:8,19 321:3 | integration 241:13 | interesting 274:25 | involved 235:7 |
| 322:4 335:2 | 241:20,23 267:3 | internal 225:8 | 242:20 250:22 |
| 345:16 363:5 | 268:17 271:18 | 231:19 237:21 | 265:19,24 286:6 |
| 367:5 375:15 | 273:14 314:9 | 238:9 242:21 | 289:9,10 292:9,17 |
| 376:16,21 391:6 | 318:5,15 344:8,11 | 245:25 255:10 | 305:5 313:19,20 |
| 400:24 439:22 | 344:20,24 345:3,4 | 276:5 289:10 | 326:18 332:23 |
| 440:17 447:20 | 345:10,14,23 | 341:19 394:12 | 335:21 351:8,13 |
| 448:4,14 449:8,14 | 346:1,10,24 347:4 | 395:6 | 355:24 408:6 |
| 449:17,20 450:20 | 353:11 372:22 | internally 395:12 | 417:6,8 420:16 |
| 451:1,7,11 452:5 | 384:15 433:2 | interpret 306:15 | 424:14 |
| 453:8,24 455:6,16 | 449:21 456:20 | 362:23,24,25 | involvement |
| 460:24 465:4,21 | 458:2,15 463:12 | interpretation | 339:19 |
| 466:1,8 469:15 | 463:12 464:4,5 | 274:17 350:18 | involving 429:13 |
| 474:18,24 476:10 | 466:6,20,21 467:3 | interpreting | irvine 212:19 |
| 476:19 477:25 | 467:10,11 469:13 | 228:20 | isolate 389:14 |
| 478:10,21 479:7 | integrations | interprets 344:10 | 390:20 |
| 479:19 482:20 | 248:19 266:22,24 | interrupt 276:19 | issue 475:11 |
| 483:3 485:19 | 266:25 267:6,12 | interruption | issues 316:5,23 |
| 486:1,9 487:9,14 | 267:14,15 268:21 | 268:15 407:12 | 317:2 330:17 |

CONFIDENTIAL

[it'll - kp]

| | | | |
|--------------------------|----------------------------|--------------------------|-------------------------|
| it'll 246:12 | 402:20,21 433:23 | key 263:9 268:20 | 355:3 357:14,16 |
| item 268:1 364:21 | jargon 301:21 | 273:5,14 333:9 | 357:25,25 358:6 |
| 364:23 369:22 | job 208:24 261:14 | 435:4 | 358:15 359:6,7 |
| 371:16 372:15 | 295:12 331:24 | keynote 439:14,19 | 377:13 384:9,17 |
| 374:14 403:23 | 404:1,3,22 463:5 | 440:5,14 441:5 | 384:18 386:12,13 |
| items 368:25 | 493:5 495:2 | 455:18,23 456:1 | 386:17,20 387:21 |
| j | jogged 302:12 | 457:15 468:25 | 390:13,17,23 |
| jackie 259:7 | johanna 473:8,10 | 472:19 | 391:4 392:1 395:1 |
| 260:23 261:17 | 473:13 477:3,3 | kind 271:13 | 395:4 408:10 |
| 262:4 263:2,13,17 | 478:4 482:24 | 326:23 347:6 | 410:17 413:13 |
| 263:22 265:22 | 484:8 485:8 | 378:11 394:11 | 414:9 416:4 |
| 266:10 267:19 | 489:13 | 395:6 | 420:10 422:24 |
| 269:18 272:14,21 | john 214:18 | kinds 405:9 | 429:2 433:12 |
| 274:21 277:19 | 219:11 | klout 277:15 | 435:24 439:5,6,11 |
| 278:1,15,21 279:2 | joined 347:13 | knew 336:10 | 439:13 444:10 |
| 282:7,12,15 283:2 | jonathan 473:15 | 391:5 456:9 457:1 | 451:21 452:19 |
| 283:5 284:6 | joshua 484:9,24 | 457:16 458:11,21 | 458:10,14 462:10 |
| 285:24 286:4,9 | journal 486:3,10 | 459:14,19 460:9 | 462:12,13 468:13 |
| 288:7 294:4 331:9 | 489:5,9 | 460:11,17 461:3 | 471:9 473:9 |
| 336:21,23,25 | jp 489:11 | 461:22 462:1,2,4,6 | 475:22 476:15,23 |
| 337:3,7,11,12 | jsc 208:4 209:4 | 462:7,12,23 | 481:18 484:25 |
| 338:7,17,21,25 | july 242:8,9 396:9 | 464:10 465:14,19 | 488:13 489:1 |
| 339:3 341:7 | 396:15 409:14 | 465:24 466:12,23 | knowledge 462:19 |
| 354:14,21 411:6 | 410:3 | 467:5,17,20,22 | 462:20,21 463:14 |
| 413:10,14 416:5 | june 242:5 | 468:24 469:7,12 | 467:13,14 484:18 |
| 416:12,20 419:24 | jury 436:11 | 470:5 | knowledgeable |
| 422:14,20,22,25 | 458:21 459:18 | know 221:8 243:4 | 303:2,5 |
| 423:3 439:10,11 | 460:17 470:1 | 247:21 256:17 | known 301:22 |
| jackie's 277:19 | k | 261:6 262:12 | 329:13 458:15 |
| 278:9,10 279:6,20 | k 211:6 404:2 | 265:1 266:17 | knows 453:16 |
| 280:3,8,19 281:1,3 | kamdar 473:14 | 272:3 276:14,16 | koukouzelis |
| 281:16 282:4,21 | keep 282:5,25 | 276:24 277:2 | 243:18 256:14 |
| 282:24 286:2 | 313:11 314:3 | 278:9 281:19,21 | kp 243:20 259:7 |
| 354:24 397:14 | 317:20 412:1 | 284:17,18 285:6 | 261:3 263:3,6 |
| 398:14 | 438:3 464:14 | 287:2,7 292:3,7,7 | 274:9 275:7 |
| jams 214:4 | keller 210:5 | 304:10 308:7 | 276:23 277:22 |
| jamsadr.com | 219:16,18 221:9 | 311:14 312:10,12 | 279:2,5,19 280:25 |
| 214:11 | kellerrohrback.c... | 314:23,25 315:3 | 281:15 282:11,18 |
| jan 241:4 | 210:15,16,17,18 | 316:25 322:16 | 282:20 285:18 |
| january 216:16 | 493:2 | 350:9 351:4 | 286:1,4,9 288:8 |
| 241:12 402:18,19 | | 353:22,25 354:5,8 | 294:4 319:24 |

CONFIDENTIAL

[kp - loeser]

| | | | |
|--|---|---|---|
| 327:15 331:9 350:5,8,11,19,22 351:1 354:13,23 360:4,23 361:10 362:6 428:3,17,20 428:22,23 439:12 439:13 463:23 473:6 478:16,17 480:21 482:10 kp's 274:19 276:20 278:14 279:7 281:23 361:19 482:15 | law 210:10 211:8 212:8,17 213:7,15 lawyer 484:17,19 485:1 lead 336:23 leadership 288:3 309:18 326:14,16 326:17,21,24 357:13 434:11,14 434:18 leading 336:21 338:17 409:13 led 311:2 337:7 lee 243:24 left 304:9 legal 292:17 336:22,24 337:8 338:7,11,18 339:1 352:21 493:7 length 308:14 366:1 421:6 lengthy 227:14 485:4 lesley 211:7 level 239:17 240:14 251:15 273:20 285:8 463:16 levels 463:20 liberty 275:1 lifestyle 319:21 light 465:9 lightly 246:18 liked 259:1 478:1 likes 258:15,19,21 277:15 limit 347:5 limited 450:20 451:1 limits 226:12 | line 262:8 303:8 379:25 400:1 435:1 473:1 493:15 494:4 495:4,7,10,13,16 495:19 lines 352:1 478:20 483:2 link 264:9,13 281:11 linkedin 360:16 list 231:21 268:2 274:22 275:7,8,11 275:12,23 276:2,6 276:23 297:24 300:14,20 313:4 314:18 325:6 327:14 336:20 364:13 408:2 434:13 435:4 439:5 453:13 listed 314:8 315:9 315:11,20 319:13 322:18 365:10 367:15 384:5 388:23 397:19 400:5 listened 318:1 441:14 lists 300:16 391:16 417:12 419:12 litigation 208:4 209:4 219:10 493:4 495:1 little 273:6,15 274:19 276:20 287:5 294:10 308:7 338:20 349:17 358:23 360:18 396:6 399:1 436:23 | 437:12 438:3 454:17 live 403:9 lives 328:14 llp 211:5 212:5 213:5 load 245:9 located 209:16 location 208:15 locked 493:12 494:1 loeser 210:6 215:5 219:15,16 220:14 221:6,8 222:15,18 227:11 229:19 233:14 240:22 242:22 243:1,4,11 243:13 244:15,23 245:5,6 246:12 248:2,11 251:10 251:20 253:18 254:14 255:1,23 256:19 257:2 258:1,11 260:9,16 263:1 264:7 265:10,18 267:13 268:18 269:14 270:13,22 271:4 271:15 272:6,13 272:22 273:3 274:1 276:18 277:4 278:13 279:4,16 280:2,9 280:24 281:14 282:18 283:11 284:2,25 285:17 286:5,17 287:4,12 287:22 288:5,14 289:17 290:10,13 290:20 291:23 292:6 293:23 |
| l | | | |
| l 208:21 209:20 492:1,24 l.l.p. 210:5 labeled 411:22 lack 309:5 language 250:20 250:21 large 252:15 253:6 297:2 329:20 334:14 388:8 larger 328:14 largest 388:24 477:6 late 483:15 laufenberg 210:7 219:17 launch 257:17 403:10,12,16,20 404:15 408:15 409:2,4,13,19 421:3 440:2 launched 236:7 255:12 298:9 329:12 409:15,21 424:21 426:13,21 launches 297:21 | | | |

CONFIDENTIAL

[loeser - looks]

| | | | |
|-------------------|-------------------|---------------------------|---------------------------|
| 294:1 295:1,5,18 | 402:11 406:3 | 482:3,10,17,25 | 282:23 295:6,21 |
| 297:19 299:4,13 | 407:3,14 408:14 | 483:12,22,24 | 297:19 308:21 |
| 300:13,23 305:1 | 409:8 410:20,24 | 484:23 488:25 | 312:7 313:4,22 |
| 306:3,11 308:6 | 411:15 412:25 | 489:10,24 493:1 | 314:9,17 315:21 |
| 309:24 311:20,22 | 413:16,25 414:11 | log 301:23 453:20 | 317:16 322:19 |
| 312:7 315:12,21 | 414:25 415:13 | logged 414:16 | 323:15 324:3 |
| 318:9,19 320:20 | 416:3,9 419:3,23 | 441:8 | 333:6 342:5,6 |
| 321:5,11 322:8 | 420:8,19 421:14 | login 248:7 301:12 | 348:20 353:4 |
| 324:23 325:9,11 | 422:21 423:16 | 301:22 319:7 | 363:15 364:8 |
| 325:14,19 326:10 | 424:3,24 425:6,13 | 372:17,21,22 | 365:19 367:1 |
| 327:8,11 330:20 | 425:25 426:14,22 | 403:20 438:21 | 375:20 379:13,23 |
| 331:3,6 335:17 | 427:20 428:16,24 | 473:22 | 379:24 391:11 |
| 337:16 339:22 | 429:4,14 430:2,12 | logs 486:12 | 411:6 414:11,23 |
| 340:6 341:10,25 | 430:23 431:8,19 | london 208:15 | 416:22 417:13 |
| 342:5 345:2 346:1 | 432:13 433:3,9,14 | 209:17 219:1,5 | 420:8 423:17 |
| 346:9 348:13 | 433:19,20 434:21 | long 246:23 | 433:14 435:1 |
| 349:1,15 350:4 | 436:4,19,25 437:7 | 247:16 264:9 | 441:15 475:20 |
| 351:15 352:12 | 437:13,19 438:2 | 307:2,10,11 | 487:3 |
| 353:4 354:11,19 | 438:12 440:4,11 | 325:17 365:18 | looked 262:16 |
| 356:5,17 358:22 | 440:24 441:3 | 383:17 392:2 | 323:6 424:23 |
| 359:10 360:10 | 442:16 444:14,18 | 393:6,7,8 396:16 | 426:11 428:6 |
| 361:8,16 363:6,14 | 444:20 445:6 | 405:6 409:8 446:3 | 464:7,8,9,11,15,19 |
| 363:17 367:16 | 446:5,10,17,25 | 448:6,20,22 469:6 | 470:23 |
| 369:20 370:4,10 | 447:21 448:5,17 | 472:9 479:21 | looking 243:13 |
| 370:20 371:1,9,14 | 449:10 450:13 | 480:14 484:1 | 260:1,7 263:1 |
| 371:25 372:15,24 | 451:23 452:9,22 | longer 294:11 | 280:25 294:2 |
| 373:15,23 374:9 | 453:5 454:6,14,17 | 307:25 310:14 | 327:12 333:4 |
| 375:6,23 376:8,12 | 454:18,21 455:8 | 345:15,19 373:12 | 334:6 362:2 |
| 377:7,23 378:12 | 456:2,8,25 457:10 | 400:25 418:23 | 374:14 381:18 |
| 379:12 380:15 | 457:14 458:4,17 | 465:7 478:24 | 382:12 394:2,25 |
| 381:4,16 382:10 | 459:11 460:6 | 479:1,9,13 480:8 | 402:19,22 472:25 |
| 382:17,22 383:10 | 461:24 462:19,25 | 480:22 481:19 | 473:23 475:17 |
| 383:19 384:3,21 | 463:22 464:11,15 | 482:4 483:8 | 487:21 |
| 385:4,7,16 386:7 | 465:24 466:12,23 | 486:24 487:7 | looks 244:12 266:8 |
| 386:22 387:5,22 | 468:24 469:17 | 488:2 | 274:10,13 277:5 |
| 388:11,20 389:13 | 470:17,25 471:5,9 | look 235:12 | 338:23 360:22 |
| 390:11 391:11 | 471:18,21 472:2,8 | 237:20 244:16 | 361:6,24 364:6 |
| 392:7,24 393:5,21 | 472:12 474:9 | 259:19 260:17,19 | 396:8 402:18 |
| 394:2 396:6 | 476:11,17 478:3 | 262:3 267:25 | 406:6 410:6 |
| 398:10,25 400:1 | 479:8,20 480:13 | 268:19 273:3 | 416:19 485:14 |
| 401:9,17,22 | 480:20 481:24 | 274:9,18 281:22 | |

CONFIDENTIAL

[los - mean]

| | | | |
|---------------------------|-------------------------|-------------------------|-------------------------|
| los 214:9 | majority 242:3 | marie 338:7,25 | materials 221:17 |
| lose 263:14 368:19 | 306:14 328:15,19 | mark 349:22 | 465:10 |
| 369:13,19,24 | 481:18 | 357:9,11 433:9,13 | matt 213:6 475:1 |
| 370:5 371:15 | making 225:21 | 433:19,21 434:17 | 475:16 |
| 375:25 377:18 | 263:17 292:16 | 435:2,3,23 436:1 | matter 219:8 |
| 379:21 384:23 | 313:16 341:21 | 439:15,19,25 | 234:6 242:21 |
| 391:13 392:11 | 342:13 343:14 | 440:25 443:9 | matters 453:10 |
| losing 430:12,23 | 354:18 385:12 | 444:11 456:6,22 | mau 372:17 373:6 |
| loss 358:24,25 | 423:13 430:7 | 458:11 464:17,20 | 374:5,6 389:8 |
| 370:12 378:1,4,10 | 432:1 445:22 | 470:11,24 472:20 | mbuongiorno |
| 378:22 379:3,13 | manage 305:7 | mark's 357:13 | 213:12 |
| 379:24 380:7,21 | managed 274:22 | 434:11,11 | md 208:4 209:4 |
| 380:22 384:4,20 | 328:15,19,23 | marked 217:10 | mdl 208:3 209:3 |
| 385:17,19,20,21 | 341:9 | 218:1 235:14 | 215:13,14,21 |
| 386:4 387:6 | management | 243:2,14 244:17 | 216:8,9,13,14,18 |
| losses 360:5,12,23 | 364:18 427:13,19 | 244:19 245:2 | 216:23,24 217:6,7 |
| 385:25 | 432:7,16 433:4,7 | 246:6 256:20 | 333:4 396:19 |
| lost 369:14 | 434:3,5,9 462:2,2 | 259:3 260:1,2 | 485:6 487:23 |
| lot 232:14 246:5 | 463:16,21 | 294:2,22 327:10 | mean 224:18 |
| 246:15 278:15 | manager 250:12 | 331:4,7 349:22 | 228:17 229:16 |
| 334:11 351:25 | 250:21,25 251:6,8 | 350:1 361:13 | 266:19 269:20,23 |
| 471:12 474:11 | 256:4,12 261:10 | 363:10,11 393:23 | 270:5 272:2,7,19 |
| love 393:3 | 261:15,20 269:10 | 393:24 410:21 | 273:14 275:15,18 |
| low 387:20 | 270:19 331:20 | 413:20 433:16 | 276:19 278:24 |
| lweaver 211:14 | 332:1,7,17 334:21 | 441:1 472:5 | 280:8 292:7,21,24 |
| m | 434:25 473:3 | 483:19,23,25 | 293:21 304:1 |
| m 357:12,13 358:3 | manager's 254:21 | marketers 333:12 | 305:17 309:13 |
| 358:6,17 434:8,8 | managers 427:21 | marketing 391:8 | 319:17 321:9,11 |
| 434:11,20 | 427:25 | master 214:6 | 333:21 346:6,12 |
| macdonell 214:18 | manually 297:3 | 219:24,25 290:12 | 353:24 355:19,21 |
| 219:11 | manufacturers | 290:14,22 291:8 | 358:11,19 359:3,8 |
| machine 492:9 | 477:7 | 295:8,16 325:16 | 370:8 372:20 |
| magic 290:11 | map 342:12 | 325:22,25 393:6 | 374:18,22 376:24 |
| main 404:1,3,22 | 343:13 | 393:13 461:14,23 | 378:8 385:19 |
| maintain 412:5 | maps 391:18 | 462:5,14,18 464:6 | 387:24 389:2 |
| maintained | march 450:5 | 464:10,13 468:3,8 | 394:15,16,23 |
| 477:16 | 470:16 473:16 | 468:12,21 480:1 | 402:2 406:9,22 |
| maintaining | 474:14 477:4 | 480:25 481:3,7,23 | 408:12,22 410:11 |
| 293:10 412:2,21 | 478:5,16 480:21 | 481:25 482:1 | 412:8,13 413:11 |
| major 452:6 459:3 | 482:3 | matches 379:22 | 423:8 427:19 |
| | | | 434:4,16 435:25 |

CONFIDENTIAL

[mean - mosseri]

| | | | |
|---|--|---|--|
| 441:25 449:5 461:22 462:11,23 489:22 meaning 240:6 353:9 355:9 meaningful 249:15 means 227:14 238:2,12,20 248:16 253:24 266:14 269:25 270:23 271:7,25 274:15 276:24 277:3 282:21 316:8 322:23 323:9,23 324:7,25 354:6,8 358:15 359:7 360:9 372:18 374:6 376:25 377:12,15 394:17,22 410:16 412:15,20,21 413:15 414:22 415:9 420:10,16 421:12 462:8,12 meant 224:7 266:16 267:19 269:16,18 272:20 273:24 281:21 283:10 292:21 305:21,22 309:4 309:23 310:8 316:22 324:19 353:23 359:16 361:5 382:8 405:6 406:11 408:18 413:10,10 467:19 measure 389:8 mechanism 301:10 377:1 | media 368:3 378:17,23 medium 387:20 memo 248:12 255:24 256:13 memorized 420:25 453:23 memory 240:2 302:12 mentioned 292:18 326:13 359:25 379:10 438:12 mentioning 409:2 merely 310:17 message 263:2 391:18 394:12 396:14 487:17 messages 396:8 410:3 messaging 478:23 478:25 483:8 messed 360:18 met 257:21,25 meta 216:8,9 metadata 363:23 364:2,2 methods 321:15 321:20 metrics 374:7 michelson 212:18 microsoft 277:12 277:13,14 middle 297:24 380:1,3 396:24 402:17 403:25 441:7 migrate 427:11 migrated 443:22 465:23 469:16 migrating 447:17 | migration 217:6 224:25 226:12 293:7 421:23 445:13 446:2 447:10 448:1,6,12 448:13,20,22 449:6 484:14 485:9 486:3,5 mike 327:6 433:21 mill 213:16 mind 243:6,8 257:8 259:21 271:22 273:21 309:8 327:3,5 359:18 432:13 471:10 minimizing 320:7 minute 223:22 235:11 259:16 471:16 minutes 309:2 325:15,20,23 438:5 467:19 471:15 misrepresent 250:25 misrepresenting 251:6 352:10 missed 227:2 mistaken 241:15 241:17,17 misuse 226:23 misused 226:22 mixing 429:9 mobile 271:17,19 307:3 311:1 313:25 314:9 317:19 318:10 319:11 333:12 364:15 366:14 369:10 424:5 | 459:8 model 216:17 236:12 237:17 307:17 433:23 435:19 moment 219:23 349:21 momentarily 350:4 monday 221:13,23 222:5,19 227:12 308:7 328:18 330:22 342:3 450:6,14 451:13 453:5,25 monica 215:20 216:7 331:10 332:16 350:6,12 350:22 351:7,19 352:24 359:7 363:2 371:23 381:1 387:23 397:7,13 398:1,13 473:14 monthly 372:23 373:3,6,16 374:2,9 374:12 388:16,20 389:1,14,18,23 390:7 months 247:5 251:19 252:21 269:11 278:5 284:19 288:22 304:10 334:10 409:25 morning 219:15 220:2,3 221:9 308:8 mosseri 215:20 216:7 331:10 332:16 350:6,22 |
|---|--|---|--|

CONFIDENTIAL

[mosseri - northern]

| | | | |
|---|---|---|---|
| 351:7 355:6 357:4 360:4,22 361:10 363:2 377:16,16 377:16 384:22 385:22 397:7,13 398:13 mosseri's 358:23 361:18 motivation 247:12 move 242:23 252:5 293:23 295:9 310:20 350:20 358:22 364:3 366:1 371:14 387:5 392:24 398:25 404:11 407:5,17 407:20 410:20 477:1 478:4,15 moved 328:3 moving 224:6 338:10 347:10 412:5 msft 277:11 mteam 353:13 357:6 358:13 muffled 371:6 415:5 multiple 226:1,11 359:17 mute 227:2 mutual 321:2 322:2 mutually 246:24 247:17 mwv1 350:8 myspace 277:16 | name 243:16,16 326:20,23 332:10 332:11 369:10 492:20 names 327:3,5 439:6 473:6 namita 327:15 naor 327:15 narrative 250:13 native 416:8 natural 337:2 naturally 360:20 nature 223:12,16 225:14 279:14 305:4 307:22 351:20 359:19 nearly 247:5,5 necessarily 224:15 297:13 333:21 353:24 384:14 385:12 421:19 423:14 429:25 435:25 437:5 necessary 342:18 396:23 493:14 494:3 need 225:17 232:2 246:21,22 247:14 265:4 273:7 279:2 281:24 286:3 295:6 296:22 310:18 329:24 333:22 342:11 351:3 358:25 393:8 407:1 410:12 421:11,22 422:7 435:12 488:9,13 489:1,16 needed 225:1 320:8 330:1 343:16 407:9 | needing 236:10 needs 294:11 310:24 437:5 471:15 negative 268:3 473:21 474:8 475:2 neither 293:2 329:10 492:16 neko 369:7,9,10 369:14,18 370:13 network 367:25 378:17,24 nevada 208:22 never 241:18 445:6 new 222:3 248:8 304:18 305:8,11 306:18,20 315:15 320:16 322:1 328:4 329:24 330:7,18 333:12 333:21 334:17 335:1,22,25 336:10,21,24 337:7 338:6,17 342:8,10,17,20 343:1,9 349:21,23 354:23 361:12 372:1 373:24 381:7 382:13 391:13 392:12,24 393:22 400:16,22 401:1,12,25 403:9 404:15 406:18,19 409:23 418:24 425:15 426:4 433:15 436:6 438:21 446:17 447:4,8 448:8 449:4 450:25 | 465:5 471:5 486:6 news 222:16 252:14 439:22 newsfeed 253:4,15 258:24 273:22,25 274:6 282:3 284:8 312:18 313:12,23 314:18 315:15 317:3 318:25 375:5,18,20 415:16 nine 247:5 251:18 269:11 270:19 277:5,7 278:5 281:20 284:19 288:22 316:9 336:1 nod 246:9,11 non 263:5 266:12 273:25 312:23 313:13 315:22 317:9,17 319:9,12 320:13,22 321:6,9 333:11 364:14 366:12,18,20,24 367:4 399:6 414:14 420:20 nondevice 344:20 nongames 367:11 367:15,17 379:5 nonintegration 344:21 nonstandard 346:16 456:11 457:2,18 458:23 459:20 460:19 nope 221:20 normally 439:17 northern 208:2 209:2 |
| n | | | |
| n 215:1 306:14 307:1 | | | |

CONFIDENTIAL

[notating - objection]

| | | | |
|--|--|--|---|
| notating 493:15 494:4 | 289:11 292:9 297:2 299:20 | object 227:4 265:6 265:13 267:9 | 360:7 361:3 367:13 369:16 |
| note 249:2 252:9 257:15 281:23 303:24 362:3 387:12 407:15,16 409:1 410:18 413:17 484:4 | 300:25 301:5 302:5,13 305:5 306:19 315:24 318:16 321:1 327:13 329:19,20 329:24,25 330:17 | 268:7 291:7 292:2 309:10 312:2 317:23 318:13 325:3 345:21 402:6 | 370:1,7,15,23 371:7,21 372:5,19 373:5,17 374:3,20 375:8 376:2,10,23 377:20 378:7 |
| noted 259:10 331:1 342:4 454:5 468:8 490:6 | 334:15 346:14 349:23 384:13 386:6 388:16,24 391:16 396:19 402:14 424:25 425:3,16 426:5,12 427:1,9 428:11,12 429:11,21 433:7 456:18 466:5 472:16,21 474:12 484:4 487:21 493:15 494:4 | objected 457:11 457:12 461:9 objection 220:10 220:14,15 229:11 240:8 251:4,12 253:9 254:9,19 255:7 257:23 258:6,9,10 262:20 264:1 269:7 270:7 270:16,25 271:9 272:1,9,24 273:17 276:13 277:1 278:2,23 279:9,21 280:6,21 281:9 282:14 283:7,20 284:10 285:5,22 286:11,22 287:11 287:18,24 288:12 289:6,21 290:4,8,9 293:16 297:15 298:21 299:10 300:7,19 304:20 305:19 306:7 307:8 311:17 315:7,17 320:14 320:24 321:7,24 324:15 335:3 337:9 339:13 340:1 341:5 344:13,16 346:4 348:6,17 351:11 352:8,21 354:4,15 355:16 356:10 358:14 359:5 | 379:7 380:9,24 381:11 382:6,16 382:23 383:24 384:7,25 386:2,11 386:25 387:15 388:4,18 389:4 390:10 391:2,23 392:13 395:24 398:4,21 399:24 401:2,14 405:24 406:20 407:10 408:9,20 411:12 412:10 414:8,19 415:21 416:6 419:15,18 420:5 420:11,22 422:17 423:6,24,25 424:1 424:18 425:2,9,21 426:10,18 427:17 428:10,19 429:1,7 429:19 430:6,17 431:2,12 432:22 433:5,11 434:15 435:21 436:17,22 437:2,10,15 439:24 442:13 444:8 445:1 446:1 446:7,13,21 447:14,23 448:10 449:2 450:10 451:18 452:1,18 453:1 454:4,11 455:1,24 456:5,15 457:6,21,24 458:6 |
| notes 221:12,14,18 235:12,13,15,19 235:20 236:4 237:21 240:23 349:16 361:20 362:1,5,6 387:11 398:13 403:6 417:19 491:4 | numbering 244:24 numbers 244:20 275:2 381:3,19,23 381:24 382:9 385:18 386:6,8 417:10 | | |
| notice 266:19 330:25 421:2,9,10 421:11,21 | o | | |
| noticed 328:3 475:6 | o'neil 327:16 411:1 413:19 428:4 433:21 439:8,9 463:23 464:16 473:6,14 477:2 478:6 484:9 485:8 | | |
| noticing 219:14 220:12 | o'neil's 434:21 435:2 | | |
| notified 306:13 | o0o 219:3 490:10 | | |
| noting 407:16 | oakland 211:11 | | |
| notion 308:15 | oath 220:11 221:2 492:8 | | |
| nov 337:19 | | | |
| november 337:18 338:16 347:8 | | | |
| number 215:9 216:2 217:2,11 218:2 221:24 223:5,23 224:24 226:10 227:22 228:9 238:6 245:4 261:2 263:19 265:23 267:1 268:12 273:1 | | | |

CONFIDENTIAL

[objection - orient]

| | | | |
|---|---|---|--|
| 459:1,23 461:6 463:17 465:17 466:4,18 468:2,6 469:11 470:9,22 471:2 474:5 476:3 476:13 477:23 479:4,16 480:24 482:13,21 484:22 488:20 489:6 objections 272:17 obtain 230:22 232:7 236:10 238:17 330:23 401:13 402:1 obtained 231:23 232:19 233:2,4 obvious 277:16 297:13 obviously 227:13 342:25 occur 257:3 297:14 359:12 435:20 441:24 occurred 225:15 306:23 436:5 occurring 421:16 occurs 391:21 oct 241:3 327:20 october 241:12 327:24 338:15 347:10 offer 428:14 437:21 offered 345:6 office 493:11 officer 220:10 offline 331:2 og 375:25 376:1,3 376:8 377:12 oh 355:23 382:23 393:14 416:8 | 429:4 ok 294:13 okay 219:4 222:2 222:15,17 223:13 224:17 225:2,22 226:5 227:24 230:11 231:11,20 233:1 234:9 236:19 237:4 238:2 239:11 242:17,22 243:11 243:19,20,22,23 244:15 245:3,14 245:20 246:14 247:9 248:4,11 251:20 252:5 255:1,23 256:19 259:2 260:11,22 260:25 261:1,11 261:17 262:2,16 263:1,22 264:7,11 266:8 267:4,21 268:18 270:13 274:18 275:15 276:7 278:13 280:12,18 281:4 281:14 282:23 284:25 285:17 286:5 288:5 289:17 290:16 293:23 294:17,21 295:13,18 298:13 299:4 300:4,23 302:17 303:22 306:24 308:21 317:16 323:15 324:3 325:9 326:5 327:8 329:1,15 332:13 333:2,15 334:3,16 337:24 339:10 342:5 | 343:20 345:17 348:4 349:1,15 351:15 352:12,23 356:17 357:20 360:3,10,22 361:24 363:7,22 364:24 365:9,19 366:6,16 368:20 369:9,22 370:20 374:14 375:23 377:7 378:12,21 379:3,12 380:15 381:16 385:10,16 388:11 390:19 393:15,16,21 396:6,13,16,21 397:6 402:21 403:4,18 405:11 407:14,23 410:2 410:20 411:15 412:25 414:25 416:3,21 417:19 417:23 418:20 419:23 421:14 422:1,13,21 423:2 423:16 424:24 427:13 428:24 430:2 436:4 438:7 440:8,9,14 442:5 442:22 443:2,16 445:23 446:17,25 447:12 463:6 468:21 470:1 471:10,11,22 472:15,24,25 473:5 474:19,25 478:3 479:8 481:23 482:25 483:22 485:3 486:8 488:9 | once 232:1 249:17 445:3 485:23 ones 222:3 258:14 263:15,25 299:8 412:2,9 413:1,3 438:4 453:11 online 264:17 open 310:21 376:4 operates 462:25 operating 271:19 459:9 operational 450:21,22 operations 394:21 394:24 395:21 425:18 426:7 operative 222:24 446:18 447:4,9 448:25 449:4 opinion 251:7 412:19 435:11 opinions 269:10 323:12 344:2 opportune 325:13 opportunity 445:7 ops 216:12 394:4 394:14,17,17,20 403:19 opt 237:12 option 478:22 483:6 options 304:16 order 230:7,20 231:7,25 305:16 335:24 342:23 435:13 466:8 oregon 208:22 organization 324:12 388:8 orient 260:22 |
|---|---|---|--|

CONFIDENTIAL

[original - partners]

| | | | |
|---|---|--|--|
| original 225:10 236:12 264:23 340:18 477:15 492:13 493:10,21 os's 307:3 outcome 339:7 outcomes 373:13 outlined 282:7 283:2,5 outputting 339:8 outside 306:9 345:23 477:8 overruled 291:8 468:9 | 399:25 402:18,20 402:21 403:25 404:10 405:8,19 406:2 414:12 441:6 477:18,21 477:24,25 478:2 483:4,11 485:4,5,7 487:12,19,21 493:15 494:4 495:4,7,10,13,16 495:19 pages 208:25 259:1,15 396:18 402:14 484:5,6 493:14,17,17 494:3,6,6 paid 382:12 383:21 painful 246:19 pair 302:2 pairs 297:2 palo 213:17 paragraph 246:2 248:2,3,25 249:4 274:19 328:1 441:7 474:25 475:15 parallel 263:8 parenthetical 489:4 parlance 394:18 parse 263:9 part 230:3 239:1 242:6 247:10 285:10 299:25 305:9 306:1 326:25 328:13,14 332:3,5 351:8,16 391:8 397:10 399:11 443:22 477:14 | parti 312:4 participate 249:17 373:2,12 participation 412:17 particular 237:16 238:18 277:17 333:17 341:12 356:7 360:25 391:21 419:21 440:17 parties 210:2 211:2 212:2 213:2 214:2 220:6 228:14 233:11,24 318:22 partly 473:22 partner 234:23 261:10,20 262:14 263:21 269:6,10 270:19,24 272:7 282:5,25 284:1 288:9 292:15 312:9 323:14 331:20,23 332:1,5 332:7,17 334:21 347:5 386:15 390:8 399:19 411:18 413:5,6,12 415:17 416:24 417:20 421:9,21 422:15 459:20 467:3 partners 222:21 222:22 223:9 224:10 227:20,25 228:5,6,9 229:2,7 229:22,24 230:13 231:21,21,23 232:7,19 233:2 234:12 241:5,14 | 241:20,23 263:4 263:14,24 264:20 265:21 266:5,6,11 268:2 271:8 272:15 277:18,23 278:17 281:6 283:14,18 284:7 285:19 286:7,19 287:9,15 292:1 308:9 314:9 315:4 318:5,15 322:21 322:23 323:1,5,9 323:18,24 324:2,5 324:8,10,11,14,19 325:1,7 326:12 341:17 342:11,18 342:24 343:7 344:8,12,21,21,24 345:3,4,11,11,14 345:18,23 346:1,2 346:10,24 347:1,5 354:22 355:14 358:25 359:4,8 381:6,9,20 382:12 382:14 383:2,12 384:5 385:24 386:10 387:11,14 389:15 390:20 398:20 399:5,21 400:4,10,12,15,21 400:24 401:10,12 401:23,25 415:20 425:1,7 426:24 427:14 428:7 429:5,17 430:3,15 431:1,11,22 432:8 432:18 433:2 449:21 455:22 456:10,20 457:2 457:17 458:2,16 458:22 460:18 |
| p | | | |
| p 306:13 p.m. 209:18 219:2 219:5 260:12,15 326:6,9 393:17,20 438:8,11 471:23 472:1 490:5,6 p3 259:9 262:11 263:4 p3.0 294:5 297:20 package 334:14 348:1 page 213:16 215:3 215:9 216:2 217:2 217:11 218:2 235:21 240:24 248:12 252:6 261:2 279:23 281:3,11 282:10 295:21 296:8 333:3,3 337:25 347:7,9 362:1,10 363:15 364:8,18 364:24 366:16 367:5 368:14 377:24 380:1,3 385:16,18 396:24 | | | |

CONFIDENTIAL

[partners - permissions]

| | | | |
|--------------------------|-------------------------|-------------------------|-------------------|
| 461:3 463:7,12,13 | 494:5 | 402:3 420:17 | 236:24 237:6,13 |
| 464:1,5 465:3,11 | people 235:6 | 421:10,10,22 | 237:15,23 238:4,5 |
| 465:14,25 466:6 | 238:13 239:6 | 446:3 448:2,6,12 | 238:7,12,15 239:4 |
| 466:21 467:3,23 | 242:20 252:2 | 448:13,20,22 | 239:9 240:17 |
| 467:24 468:11 | 261:2 263:19 | 460:25 486:24 | 248:9,22 249:24 |
| 469:2,8,13 470:2 | 264:2 265:24 | 487:8 493:18 | 250:4 251:18,24 |
| 474:12 | 274:2 278:5 | 494:7 | 252:1,7 253:16,20 |
| partnership | 281:21 283:10,22 | periods 266:20 | 262:19 263:15 |
| 326:15 332:9 | 286:6,13 288:19 | perjury 220:20 | 272:16 274:23 |
| 354:14 383:16 | 289:9,9 292:9 | 491:2 493:17 | 275:9,17,19 |
| 394:14 397:15 | 305:5 313:20 | 494:6 | 276:12 277:25 |
| 398:2,15,19 | 321:2,4 326:25 | perm 399:16 | 283:15 284:8 |
| 406:18 412:4 | 327:2,13 335:9,13 | permi 233:16 | 285:20 286:8 |
| 463:11 | 336:9,15 341:15 | permission 231:4 | 287:10 288:11 |
| partnerships | 349:6,10 357:16 | 231:8,8 234:2 | 289:5 290:3 291:6 |
| 216:12 261:16,21 | 357:17,20 358:1 | 236:21 237:7,9,17 | 291:16 292:1,14 |
| 263:9,19 265:22 | 359:24 389:11 | 237:22 238:17 | 293:15 299:1 |
| 283:22 288:2 | 392:18 393:13 | 239:6,13,19,20,22 | 300:1,16,21,24 |
| 310:4 323:11,12 | 394:19 401:7 | 239:23 240:5 | 301:1,5,24 302:3 |
| 323:13 324:1,10 | 412:14 414:16 | 252:12,25 253:1,2 | 302:15 308:10 |
| 324:17,21 331:21 | 428:5,6 429:13,21 | 253:22,25 254:2,4 | 313:1,2 315:24 |
| 332:2,8,12 333:11 | 432:3,6 434:19 | 254:5,7 255:5,13 | 318:12 319:2 |
| 394:4,16,17 | 437:8 442:23 | 255:21 256:3,8,11 | 321:14,19 322:6 |
| 403:19 416:23 | 443:19 455:6 | 256:25 257:16,19 | 334:7 340:13 |
| 418:2,2 467:1,9,11 | 462:3 463:10,15 | 258:20 282:4 | 343:9 345:5 |
| party 234:1 252:4 | 463:23,25 465:18 | 286:20 287:17 | 346:11 372:4 |
| 318:17 436:20,24 | 467:1 470:15 | 301:11,15 302:2 | 399:22 408:8 |
| 492:18 | 475:11 478:1 | 312:20,22 330:5 | 414:14 425:8 |
| pass 288:24 | percent 238:18 | 345:20 | 426:17,20 427:8 |
| passed 294:12 | 239:7,10 358:10 | permissions | 429:6,18 430:4,13 |
| path 277:15 | 360:19 364:19 | 216:22 222:23 | 430:24 432:9,19 |
| 360:16 | 394:9 395:8 | 223:4,6,9 224:11 | 443:15 445:5,12 |
| pdf 493:12 494:1 | 406:21 | 224:13,15 227:16 | 445:15 446:23 |
| peace 473:8,10,13 | percentage 239:6 | 227:17 230:14,15 | 448:15 449:8,24 |
| 473:19 477:3,3 | 275:3 | 230:20,21 231:1 | 450:3,8 451:13 |
| 478:4 482:11,18 | perfectly 261:7 | 231:24 232:1,16 | 452:2 455:4,14,19 |
| 484:8 485:8,13 | perform 320:8 | 232:20,24 233:2,4 | 464:2 466:14 |
| 487:14 489:13 | period 307:23 | 233:5,9,12,14,16 | 470:14 472:11 |
| pegged 437:5 | 308:5 310:14 | 233:18,19,20,22 | 474:17,23 478:24 |
| penalty 220:20 | 327:6 344:4 | 234:12 235:3,4,10 | 479:1,7,10,14,18 |
| 491:2 493:16 | 389:16 390:11,21 | 236:1,5,7,8,11,19 | 480:9,22 481:19 |

CONFIDENTIAL

[permissions - pmds]

| | | | |
|---|--|--|--|
| 482:5,9 483:9 permissions.xlsx. 259:11 perms 329:5 persistent 475:11 person 267:21,23 312:4 316:25 323:3,10 348:10 352:2 371:1 410:9 418:18 419:21,23 473:8 personal 227:8 239:17,24 240:14 249:13 250:6,18 251:16,22 252:16 253:7,12 255:17 268:10 273:20 276:4 285:8 287:1 296:23,25 297:10 298:24 301:8 303:18 304:2 308:3 309:15 310:1 329:22 333:25 336:2 339:18 342:21 344:18 355:23 356:22 358:8 372:8 374:25 406:23 408:23 420:15 437:23 personally 235:15 235:19 320:18 321:3 322:4 persons 335:24 484:18 perspective 268:5 268:9,10 270:5 387:17 388:6 435:9 pertain 335:5,15 | pertained 348:21 pertaining 379:4 pertains 492:12 phase 298:4,15 299:20 phases 299:14 philosophy 249:9 phone 477:6 phones 459:8 photos 258:2,15 258:25 phrase 231:11 234:19 272:20 309:12 408:15 429:3 440:22 phrased 240:5 phuntso 213:14 219:21 physical 404:12 407:5,17 piece 334:22 351:19 363:4 pinterest 277:15 place 237:17 328:18 409:4 435:14 448:2 492:5 places 325:1 plaintiffs 209:16 210:4 211:4 plan 328:24 412:5 421:3 planned 459:10 460:25 planning 250:22 267:14 285:3 294:6 295:22 298:4,15 299:14 299:20 305:2,10 393:11 | plans 432:25 456:21 458:1,15 466:20 467:2,9 platform 216:17 225:11 233:17 234:6,8 235:21 243:25 244:8,12 245:18,23,24 246:17 247:3 248:7,17 253:19 261:21 262:18 266:24 267:7 268:6 273:23 274:4 285:4 288:3 294:19 295:22 296:15 298:7 299:25 302:24 304:18,24 305:3 305:11 306:18,20 310:3 315:16 320:5,12 324:10 326:14,15,16,17 326:19,21,21,22 328:22 329:1,8,10 329:14,15 330:11 330:16 331:20 332:2,8,11,22,24 333:5 334:8,9,19 338:1 340:14 343:1,4,9,17,23 344:1 345:1,9 346:15 347:11,25 351:9,17 354:23 356:1,9 359:13 361:2 372:2,12 373:1,2,3,13,25 375:1,14 381:8 382:13,15 383:4 384:6,12 389:10 389:12 391:5,13 392:12,22 395:11 | 399:6,6 400:17,23 401:1,12,25 403:9 404:15 406:19 409:14,18 418:24 420:20 421:18 423:19 425:12,15 425:17 426:5,6 430:8 431:3,6 432:1 433:23 434:25 435:19,20 436:6,6,10 438:18 443:11 446:18 447:4,9 448:9,12 448:25 449:3,4 450:24 456:11,24 457:2,18 458:23 459:4,6,20 460:3 460:19 463:10 465:5 466:11 467:1 470:12 473:4 486:6 platforms 476:20 478:11 play 440:6 played 456:2 playing 440:10 please 219:13,14 220:13,17 289:20 289:21 290:7 295:3 327:19 397:20,22 401:16 410:16 432:12 442:15 444:15 447:3,13 454:15 460:15 467:21 480:4,18 485:22 plus 275:12 303:9 pmd's 364:15 366:13 pmds 364:17,18 |
|---|--|--|--|

CONFIDENTIAL

[poc's - private]

| | | | |
|---------------------------|--------------------------|---------------------------|--------------------------|
| poc's 397:15 | posted 455:7 | 349:3 360:1 | previously 217:10 |
| pocs 397:16 | posts 253:14,15 | 386:18 | 218:1 229:10 |
| point 228:18 256:7 | 258:2,17,18,19,21 | prepared 235:14 | 232:20,24 235:2 |
| 304:15 307:15,19 | 258:24 453:12 | 239:15 240:9 | 241:6,14,20,24 |
| 362:22 402:5 | 477:25 478:2 | 247:5 249:5 271:5 | 243:2,14 244:17 |
| 403:15 415:19 | potential 250:13 | 271:23 272:2 | 256:20 259:3 |
| 417:14 419:8 | 262:22 263:20 | 283:17,21 295:20 | 285:23 289:8,16 |
| 481:18 | 268:2 303:20 | 305:9 315:1 342:2 | 294:2,22 308:16 |
| points 274:25 | 348:22 370:17 | 350:16 373:19,25 | 318:15 326:10 |
| 397:17,18 398:15 | 384:19 385:25 | 380:13,14 381:1 | 327:9 328:6 331:4 |
| 399:19 486:25 | potentially 234:3 | 381:14 403:16 | 331:7 339:23,23 |
| 488:3 | 238:10 265:14,15 | 416:5 486:10 | 386:14 410:21 |
| policies 303:24 | 268:16 286:15 | preparing 250:22 | 413:20 441:1 |
| 305:15,17,18 | 310:12 341:7 | 295:25 296:2,4 | prior 228:6 229:3 |
| 306:5,5 390:16 | 344:19 365:8 | 303:7 | 237:5,13 245:22 |
| policy 306:10 | 368:24 387:2 | present 214:15 | 389:21 416:4,15 |
| popping 259:21 | power 249:15 | 303:15,25 402:5 | 492:7 |
| portion 337:24 | powerful 252:15 | 437:8 | priv 217:5 484:14 |
| 440:5 456:3 | 253:6 | presentation | privacy 219:9 |
| posed 371:20 | powering 471:10 | 215:16 249:4 | 226:15,16 236:25 |
| posing 258:13 | powerpoint | 363:9 365:4,10 | private 227:20,23 |
| position 227:6 | 215:16 216:4 | 366:17 367:3 | 227:24 228:3,7,11 |
| 247:9 253:11 | 371:2 | 368:21 378:6 | 228:16 229:4,8,10 |
| 261:6 413:14 | pr 268:2 | 413:17 414:7 | 229:20,25 230:6 |
| 419:20 422:19 | pre 303:23 305:24 | 416:11 423:17 | 230:10,23 231:1 |
| 434:22 | 333:12 335:20,21 | 437:18,20,20 | 231:13,22 232:9 |
| positions 354:14 | 335:25 336:10,13 | 440:15 441:15 | 232:21 233:2 |
| possible 228:10 | preapprove | presented 282:12 | 234:19,21,22 |
| 240:19 305:25 | 333:18 334:17 | 422:4 | 296:13 318:16,19 |
| 325:5 344:1 | 335:1 | presenting 437:23 | 318:21 345:5 |
| 386:13 422:9,11 | precise 225:14 | presents 486:9 | 346:2,11 347:2,6 |
| 422:14 460:3 | 267:2 279:14 | press 268:3 371:23 | 366:8 400:3,4,10 |
| post 242:8,13 | 346:7 | 372:1,2 475:11 | 400:11,16,22 |
| 396:25 397:1,2,4,6 | precisely 283:9 | pretty 282:11 | 401:11,24 402:9 |
| 397:11,14 398:12 | prep 437:12,14 | 295:11 299:16 | 411:22 412:2,9,24 |
| 398:14,24 399:1 | preparation | 473:21 | 413:1,3 418:6 |
| 399:12 400:2 | 240:11 285:10 | prevent 248:18 | 420:3 421:24,25 |
| 402:17 404:9 | 295:22 305:2,10 | previous 318:2 | 422:1 423:20 |
| 406:4,5 407:25 | 403:14 437:8,17 | 335:8 379:11,22 | 424:4,7,10 427:2,3 |
| 408:5 409:12 | prepare 330:15 | 392:17 417:25 | 469:2,8 |
| 410:2,6 450:14 | 336:8 341:11 | 421:20 488:22 | |

CONFIDENTIAL

[privatization - put]

| | | | |
|--|--|--|--|
| privatization 300:22 464:23 465:1,6 | 338:18 342:9 374:13 395:18 414:2 417:2 434:24 | protocol 340:7,10 340:23 341:1,21 | 443:23 445:3 455:14 456:22,23 |
| privatizations 435:5 | product's 251:8 | provide 254:6,12 255:5 258:2 289:4 | 460:3 465:7,22 466:10 467:6 469:15 470:12 |
| privatized 299:1,3 299:9 300:2,4,9 | production 308:1 | 290:2 291:5,15 309:7 320:7 321:5 | publicly 222:23 227:15 228:1 |
| probably 267:21 271:21 296:8 379:9 383:25 453:10 | products 374:12 377:8 389:8 | 338:21 391:6 452:24 476:19 478:10 | 230:5,16,19,19 231:5,6,23,25 232:1,20,24 234:11 235:4 242:13 255:14 256:8 257:5 268:16 299:6 343:8 345:19 415:17 425:8 426:15,25 427:7 427:15 428:8,8 430:4 438:22 443:11 475:23 476:1,12 |
| problem 226:24 471:18 | professional 209:21 317:13,13 317:14 | provided 221:12 222:4 229:8,25 234:11 235:13 247:22 274:6 307:5 315:14 337:20 350:17 361:20 421:16 459:9 493:19 494:8 | pull 274:22 276:5 333:9 |
| procedure 493:19 493:20 | profile 208:4 209:4 219:9 493:4 495:1 | provides 264:19 | pulled 301:7 302:8 381:2 |
| proceeded 322:12 | program 314:10 318:5 329:11 | providing 227:15 246:20 247:14,19 251:21 308:15 423:18 460:5 | pulling 263:7 417:8 |
| proceedings 492:4 492:7,8,14 | progress 338:9 423:13 | proxy 249:12 250:6,17 | purdy 243:24 327:6 433:22 |
| process 241:25 242:1,3,4,6 246:20 247:13 265:19 326:1 334:8 336:22,24 337:8 338:6,8,18 339:1 339:11,11,16,24 340:3 341:9 342:3 344:9,25 346:25 354:9 400:6,13,15 400:19,21 401:4,5 445:14 446:23 447:10,17,18,18 449:6 | project 334:4 352:4 | ps12 347:21 349:5 ps12n 215:11 347:14,22,25 348:5,15,22 350:7 350:23 351:9 353:11 355:15 399:16,23 403:20 411:4 414:2 | purpose 221:18 225:22,24 267:2 380:4 408:7 |
| produced 335:14 364:1 371:12 415:24 | prompt 249:16 | pub 299:21 | purposes 397:4 |
| producing 313:19 | prompted 241:7 | public 297:25 298:1 300:14,15 304:5 342:8,12,19 342:24 344:25 345:8 346:16 399:15 424:10,12 425:11 432:23 | push 475:2 |
| product 250:12,21 250:24 251:6 254:21 256:4,12 326:17,25 336:22 336:24 337:8 | properly 234:19 | | put 243:1 244:15 264:3 274:21 275:7,23 276:1 283:23 285:24 288:19 311:9 327:9 362:7 363:7 399:20 404:14 |
| | proposal 307:21 | | |
| | proposals 299:24 300:1 365:8 | | |
| | propose 303:10 | | |
| | proposed 250:14 265:25 266:23 267:1,11 272:14 278:1 283:24,25 284:22 288:24 298:8,25 299:2 334:1 365:7 372:10 385:21 | | |
| | proposing 303:19 307:17 334:21 | | |
| | propositions 392:22 | | |
| | protected 431:10 431:21 | | |

CONFIDENTIAL

[put - realign]

| | | | |
|--|--|---|---|
| 416:15 429:21 435:13 472:4 479:11 487:14 putting 336:21,23 337:7 338:17 pwangdra 213:19 | 373:22 375:11,24 377:8,17 381:17 382:21 383:18,20 385:3,5 386:23,23 387:2 389:21 390:2,5,18 391:1 392:4 398:9 401:16 410:9,15 410:18 419:7,10 424:2 426:1 430:22 431:17 432:12,14,16 434:19 442:15 444:13,15,19 446:6,10 447:1,2 447:12,22,25 448:18,19,21 452:23,25 454:13 454:19 455:9 458:5,9 459:12,13 459:14,16,17 460:7,10,13,15 461:1,10,12,13,15 461:16,18 462:6,7 464:8 467:13,14 467:16,21 468:4,7 468:10,14,18 469:5,24,25 476:7 479:22,23,24 480:2,3,6,17,20 481:4,8,9,11,12 questions 221:10 222:20,25 232:14 259:17 278:25 310:22 369:5,12 371:19 378:15 386:18 397:11,22 440:7 475:12 484:2 quick 471:17 | quickly 366:1 480:15 quinn 327:14 quip 395:1 quite 360:2 469:6 484:1 quote 223:22 238:8,11 456:11 r r 495:3,3 r&s 494:1,9 raise 220:17 475:12 raised 227:10 ramp 347:13 348:10 range 270:11 429:11 rate 226:12 237:24 239:5,9,19,22 240:6 rating 380:7 rblume 212:13 rcp 424:5 reach 397:22 react 263:20 307:24 read 223:19 235:5 237:25 238:1 241:1 242:20 246:2 247:10 248:3,25 252:6,9 252:11,22,23,24 253:1,2,4,20,21,25 254:7,23,24 255:5 256:3,24 257:8,13 258:3,22 267:8 268:21,25 269:1,4 279:24 281:3 282:10 283:8 289:18,22 290:19 | 290:24,25 291:10 292:10,10 302:6 303:12,13 312:19 312:22 313:23 328:1 329:5,6,7 330:5 333:7 336:19 338:5 351:5,6,14 353:14 353:15 357:9 360:11,17 362:14 363:19 365:15,23 367:3,6,9 368:16 378:9 382:4 394:12 396:7,22 397:10 398:11,18 399:11 401:17,20 404:8,20 411:23 415:16,19 419:7 422:18 426:1,17 432:15 435:25 444:14 448:19 454:14,19 459:14 460:13,15 475:21 478:17 479:23 480:3,5 484:5 487:4 488:4 491:2 reading 246:7,13 248:1 249:4 252:8 252:10 254:21 276:22 289:10 302:11,12 370:9 381:25 382:8 383:1 386:3,3 394:9 404:2 406:24 423:11 432:13 469:21 493:23 494:9 reagan 477:2 478:6 realign 435:12 |
|--|--|---|---|

CONFIDENTIAL

[really - refers]

| | | | |
|---|---|--|--|
| really 298:14 330:20 344:7 390:4 444:1 469:24 471:14 | 316:7 317:1 331:19,24 332:11 334:23 335:14,16 335:20 336:1,2,7 336:25 339:3,6,7 340:9,25 342:21 343:24 344:23 347:18,19 349:6 351:20 353:23 361:22 400:14,18 401:6 405:6 408:24 417:6,23 418:3 440:23 | 313:21 314:3,6,12 314:16,20,22,24 317:19,22,25 318:1 319:23 322:11 337:15 | 316:6 344:11 357:11,12 394:8 394:10 397:17 406:15 414:18 424:6 426:12 428:20 |
| reason 222:20 226:16 235:9 250:25 295:7 375:19 422:11,14 437:13 495:6,9,12 495:15,18,21 | 340:9,25 342:21 343:24 344:23 347:18,19 349:6 351:20 353:23 361:22 400:14,18 401:6 405:6 408:24 417:6,23 418:3 440:23 | recommendations 264:19 313:17 320:18 354:21 | reference 247:19 280:23 305:24 312:19 313:1 359:10 411:9 448:20 486:5 |
| reasonable 224:5 228:2 337:4 350:18 353:2 359:15 411:13 434:17 | recalled 257:11 receive 272:16 received 278:21 385:23 435:23 receives 383:11 recess 260:13 326:7 393:18 438:9 471:24 | recommended 279:6,20 record 219:5 220:9 230:12 234:10 237:4 243:10 245:21 246:3,7 249:1 252:25 259:6 260:10,12,15 289:22 290:25 291:10 326:3,4,6,9 346:23 347:22 360:11 362:3,15 363:19,24 365:15 365:23 368:16 393:14,17,20 397:10 404:9 407:13 413:22 421:3 425:14 426:4 432:15 438:6,8,11 444:17 468:9 471:23 472:1 480:5 484:4 490:3,4 492:8,11 | referenced 355:2 493:6 references 265:7 342:20 413:4 referred 281:15 320:11,22 331:23 354:13,23 413:1,2 424:25 428:17,22 428:23,25 referring 231:13 231:15 235:16 255:9 264:25 273:9,13 278:8 281:16,17,18 282:12 300:10 321:13 334:13 344:25 377:5,10 389:7 402:25 405:16 408:5,11 408:13,25 429:3 434:8 443:10 453:9 456:23 |
| rebecca 208:21 209:20 325:19,22 432:13 444:15 480:13 492:1,24 | recognized 267:5 422:7 recollection 235:1 235:7 239:17 261:25 276:4,8 296:25 297:11 301:10,13 303:19 304:3,12 307:20 308:3 309:16 329:21 336:17 337:15 341:8,15 341:17 | record's 232:13 recording 441:15 recreate 480:15 redactions 484:6 reduce 452:4 reducing 452:7 refer 235:25 267:15 282:16 285:25 300:9 | refers 231:17 233:8 242:9 244:13 245:24 247:21 248:6 262:12,14 268:5 275:7 280:25 282:18,20 285:18 286:1 302:11,12 |
| recall 222:19,25 223:2,3,11,12,13 223:15 224:4 227:8,19,21 238:10 239:18,25 240:15,18,21 257:10 265:18,23 266:4,6 276:1 284:12 287:2,19 295:25 296:2 302:10 304:6 305:21 306:1 309:21 310:10 311:6 313:20 | recollections 349:11 recommendation 275:2 277:19 288:7,8 313:10,18 | | |

CONFIDENTIAL

[refers - responsibilities]

| | | | |
|--|---|---|---|
| 312:21 328:7 329:10 347:5,25 348:1 357:13 360:6 364:18 376:4,5 381:22 389:9 417:24 424:8 464:23 reflect 269:13 485:20 reflected 459:3 regan 212:7 219:22 regard 313:9 322:13 359:12 369:25 371:20 375:24 387:14 389:2 391:21 392:10 420:19 440:16 486:2 regarding 294:18 332:22 354:21 397:14 398:14 registered 209:21 regular 332:21 345:6 relate 370:13 related 367:7 369:24 370:5 374:9 383:3 392:15 relates 208:6 209:6 265:2 relating 370:4 372:3 374:1 380:7 relationship 353:13 354:12,25 355:3 357:6,8 358:12,16 421:21 435:12 relationships 293:10 311:2 | 430:14,25 431:10 431:21 459:7 relative 270:18,18 492:17 relatively 225:16 297:2 390:14 421:4,4 released 493:21 releasing 252:18 rely 412:24 relying 337:14 remain 254:23,25 remained 255:13 256:8 remember 302:7 304:7 344:2 361:19 384:11 385:9 408:12 423:11 remind 250:9 390:1 450:11 remote 220:11 remotely 208:14 209:18 492:5 remove 241:19,19 257:18 282:5,25 297:17 313:11 372:17,21,22 removed 231:6 241:4,13,23 242:11 257:16 426:19 445:13 448:15 450:4 451:11 455:13 removing 249:7 249:23 252:21 273:7 356:3 414:13 repeat 232:4,10 430:21 431:17 432:12 447:2 | 454:12,13 replacement 318:17 319:4 466:9 replica 313:25 317:19 318:10 319:11 replicate 318:22 replying 482:23 report 422:23 482:11 reported 208:14 208:20 209:19 422:25 reporter 209:20 209:21,22 219:12 220:8,16,19 246:10,11 249:2 251:2 289:18 290:18 325:24 350:2 361:14 363:12 371:5 393:25 415:4 433:17 444:16 454:16,20 472:6 478:9 483:20 492:2 represent 361:16 419:19 422:19 431:23 441:3 representation 247:8 representative 208:13 219:21,25 271:6 323:11 408:23 416:1 representing 462:15 represents 225:6 251:7 286:12 302:4 305:12 | reputational 356:1 356:18 request 235:10 236:21 237:19 238:4 252:13 254:4,4 256:10 274:22 275:9 483:14 requested 237:22 238:13 239:4,14 239:22 248:10 302:14 339:21 492:15 494:1,9,10 requesting 231:8 275:19 300:25 301:5,15 315:24 requests 327:18 require 248:18 312:9 314:25 367:18 373:10 392:1 required 228:16 237:18 238:4 378:16 requirement 236:20 237:14 407:1 requirements 306:20 requiring 236:25 422:16 resonate 336:14 respect 234:21 respond 489:20 responding 482:18 response 239:15 353:11 355:14 361:19 478:7 responsibilities 463:4 |
|--|---|---|---|

CONFIDENTIAL

[responsible - rob]

| | | | |
|---|--|---|--|
| responsible 397:19 398:16 463:7,11 rest 322:5 390:2 restate 444:18 447:25 restaurant 376:21 result 288:22 329:18 356:8 357:1 372:23 386:1 resulted 237:23 348:2 resulting 355:13 372:17 373:13 resumed 221:5 retain 430:4 432:8 432:18 488:12 retained 232:23 448:3 449:7,17 retention 390:16 return 493:17 494:6 rev 244:1 360:5,5 360:12 revealed 237:22 revenue 360:6,9 369:2,6,14,20,21 369:25 370:5,13 379:15,25 380:1,5 380:8,12,16,23 381:3,8,19,23,24 382:2,2,12 383:2,7 383:11,21 384:4 384:12,14,20,24 385:10,11,14,23 386:6,8,19 390:20 review 215:12 221:21 222:6 253:23 254:3,24 255:14 259:17 | 294:10 303:10 310:24 311:9,10 311:10,12 333:13 350:7,23 351:2,8 351:16 353:17,22 354:3,3,13 355:1,6 400:6,13,15,19,21 410:14 492:14 493:8,10,13 494:2 reviewed 221:23 222:1 240:11 274:25 275:4 276:23 341:18 349:12 350:16 401:8 427:22 429:20,25 435:3 revised 315:19 485:19 revoke 303:24 305:16,16 306:4 revoking 306:9 right 220:17 222:18 223:4,10 224:9,14 227:16 228:1,8 229:5,6,10 230:1,16,24 231:14 232:21 233:3,7,11,25 234:4,13 236:23 237:16 242:18,22 244:12 245:5,15 250:1,8 251:24 253:20 256:13 258:16 262:19 263:16,25 264:21 274:12 275:10 277:6,12 278:22 279:8,16 280:14 280:20 281:1,8,15 282:13,19 285:21 288:11 292:19 | 293:4 294:19 295:23 296:19 298:2,6,20 299:22 300:18 303:17 304:19 305:3,11 305:18 306:16,21 306:22 308:17 313:6,14 318:12 318:20 319:2,8,12 326:15 328:20 333:19,22 334:8 334:19 337:3,22 338:18,20,22 341:12 342:19 343:2,10,18 347:24 349:2 350:17 351:10,23 352:17 353:18 360:6 361:2 362:19 363:3,6,6 364:11,14,22 365:6,21 366:4,14 366:15 367:23 368:1,4,7,22 369:3 369:15,20,25 370:6,22 371:4 373:4 374:10 375:7 376:9 377:19 378:6,19 379:6,9,21 380:8 380:17,18,23 381:10 384:24 385:17 386:24 388:22 389:25 393:4 396:25 397:3,8,9 398:3,20 399:23 402:12,20 403:9 404:17 405:3,14,17,23 407:9 409:13 410:3,13 411:4 | 412:18 416:5,9,13 417:7,16,21 418:14,15,24 419:14 420:4 421:18 422:16 425:1,8,20 426:9 426:17,25 427:8 427:16 428:9,18 428:25 429:18 430:5,16 431:1,11 431:22 432:11,21 433:4 436:8 438:13,19 439:15 440:18 441:22 442:20 445:11,21 445:25 446:12,20 447:7 450:2,6,9,18 450:23 451:4,8,14 452:11 453:8 454:10 455:22 456:4,14 457:5,20 462:12,17 463:1,9 463:16 464:3,13 464:18,24 465:5 466:15 469:20 470:21 473:18 474:8,15,21 476:12 477:22 479:3,15 480:10 482:5,12 486:3 488:19 489:13 risk 268:1,2 281:7 338:11 371:23,25 372:2 road 213:16 rob 219:19 258:8 344:15 352:19 419:17 457:8,23 461:8 466:16 484:21 |
|---|--|---|--|

CONFIDENTIAL

[robert - see]

| | | | |
|--------------------------|----------------------------|-------------------------|--------------------------|
| robert 212:6 | says 247:13 252:6 | 369:16 370:15,23 | search 391:18 |
| rock 485:15 | 255:2 266:2 | 371:21 372:5,19 | 395:19,20 396:2,4 |
| rohrback 210:5 | 268:20 278:15 | 373:5,17,19 374:4 | searchable 395:22 |
| 219:16,18 221:9 | 296:18 301:1 | 374:20,23 375:9 | searches 395:22 |
| roll 305:6 | 306:12 308:22 | 378:7 379:7 380:9 | seattle 210:13 |
| rolled 284:23 | 312:8 313:23 | 380:24 381:12,14 | second 241:1 |
| 304:13,14 305:14 | 314:18 315:23 | 382:6,24 383:13 | 260:10 274:18 |
| 308:5 330:2 | 316:3,4 319:21 | 383:24 384:7 | 296:7 310:23 |
| 359:21 | 322:9 338:6 342:8 | 386:2,11,25 | 312:23 313:13 |
| rolling 305:3 | 348:9 351:12 | 387:15 388:4 | 338:5 356:25 |
| rollout 294:5,18 | 354:7 358:24 | 389:5 391:23 | 364:5,6 365:19 |
| 298:4 305:10 | 364:10,25 365:17 | 392:14 395:24 | 366:12 368:3 |
| 343:5,9,17,22,25 | 367:4 374:15 | 398:22 399:24 | 371:16 474:25 |
| 344:3 346:21 | 391:16 399:2 | 401:2,14 405:25 | 475:15 |
| romano 208:21 | 400:2 404:2 | 405:25 406:20 | seconds 302:6 |
| 209:20 492:1,24 | 405:18 408:3 | 407:10 408:20 | see 235:23,24 |
| rose 310:3 | 416:23 417:2,11 | 412:11 414:8,19 | 236:2,3 243:4,6 |
| ross 213:8 | 417:22 418:5,9 | 415:3,7,21 419:1 | 244:2,3,5,6,9,10 |
| roughly 237:24 | 419:11 423:23 | 419:15,18 420:5 | 245:7,15 248:21 |
| rpr 208:21 492:24 | 424:4 442:6 | 420:11 422:17 | 248:23,24 259:4 |
| rules 494:8 | 473:19 475:22 | 424:18 429:19 | 259:12,13 260:3,8 |
| run 436:13 | 478:4,16 481:17 | 430:20 434:15 | 262:5 263:11,12 |
| s | 486:22 489:15,21 | 435:21 436:22 | 263:18 264:8,14 |
| s 215:8 216:1 | sc 488:6 489:21 | 437:2,10 442:13 | 265:9,12 274:24 |
| 217:1 495:3 | scanned 260:25 | 444:8 445:1 446:1 | 275:5,6,13 277:7,9 |
| safe 338:8 339:1 | scenarios 263:9 | 448:10 455:24 | 277:10,20,21 |
| 339:10,10,11 | schedule 493:10 | 456:5 457:7,13,21 | 278:19,20 281:2 |
| sajjadi 473:15 | scientist 317:11,15 | 466:4 468:2,7 | 282:9,10 283:3,4 |
| sales 311:2 391:7 | scope 227:4 | 470:9 476:3,13 | 288:14,17 294:7,8 |
| sandberg 358:3 | 229:11,16 240:8 | 479:4,16 480:24 | 294:15,16 295:24 |
| satisfied 254:18 | 251:12 253:9 | 482:6,13,21 | 296:11,12,16,17 |
| saw 250:15 296:4 | 254:9,19 255:7 | 484:22 489:6 | 296:20 297:22 |
| 349:16 410:4 | 257:23 258:6,10 | scoped 224:24 | 298:3 301:2,3 |
| saying 242:14 | 269:7 270:7,16,25 | 225:14 226:13,18 | 302:7 308:25 |
| 246:8 250:24 | 272:1,9,24 273:17 | screen 247:25 | 309:1 310:23 |
| 265:5 266:4 352:3 | 283:20 339:13 | 279:1 472:4 | 311:3,4,22 312:17 |
| 352:16 353:21 | 340:1 346:4 348:6 | scroll 259:22 | 314:1,5 316:1 |
| 406:13 407:18 | 348:17 354:15 | scrolling 338:24 | 319:24,25 320:1 |
| 409:12 410:10 | 355:16 356:10 | 398:6 | 323:20 327:21 |
| 419:3 461:17 | 358:14 359:5 | se 271:11 | 330:12 331:11,16 |
| 475:19 | 360:7 361:3 | | 335:4,13 338:3,12 |

CONFIDENTIAL

[see - significant]

| | | | |
|---|---|---|--|
| 338:13 342:15,16 348:18 349:21 350:5,9,10,11,13 350:14,21,24,25 362:11 364:10,16 364:25 365:2,3,13 365:14 366:17 367:17,20 371:17 371:18 374:16,16 377:25 378:15,20 379:1,2,17,18 380:1,3,11,11 383:6 387:8,8,9,10 388:13,14,15,17 391:5 394:5,6 396:10 397:24 398:6 399:3,4,8,17 399:18 400:7,8 402:16,19,23 403:21,22 404:6,7 409:12 410:9 411:5,19,20,24,25 412:6,7 413:25 414:4,5 416:11,24 417:4,5 418:7,8,11 418:12 422:22 423:2,7,21,22 424:3 426:1 433:25 434:1 435:6,7,8,15,16 441:7,12,13 472:12,21 473:17 473:25 474:1 475:8,9,13,14,18 476:24,25 477:11 477:12,19,20 478:13,14 484:10 484:11,15,16 485:10,11,17,24 485:25 486:14,20 486:21 487:2,18 | 487:25 488:15,16 489:15,18,19 seeing 239:18 240:18 244:21 247:25 264:23 335:7 359:24 383:5 seeking 405:20,21 seen 220:4 222:6,7 236:16,24 239:21 240:3 250:2 251:25 296:3 297:1 304:23 305:23 320:4 323:4 336:5 346:20 375:3 417:14 424:19 426:22 427:12 428:11 458:12 473:20 sees 301:23 select 238:7 send 222:3,13 485:23 senior 326:25 sense 270:14 275:25 288:4 306:4 318:4 436:2 442:4 sensitive 422:15 426:16 465:25 467:23 468:19 sensitivity 411:18 413:5,6,12 sent 221:25 264:12 294:17 361:10 413:22 416:12 458:13 464:19 484:19 485:13 487:5 | sentence 234:20 404:8 475:21 separate 318:5 344:9,25 345:7 346:20 september 294:5 484:13 485:12 487:5,15 sequence 244:24 series 396:8 417:12 service 424:11,12 set 222:2,14 245:25 263:20 281:11 302:2 311:12 321:14,15 342:10 344:24 351:3 359:21 365:7 425:11 431:6 492:5 settings 216:21 472:11 473:23 475:6,18 478:22 483:6 seventh 361:25 sgtm 489:21,22 share 244:22 249:8,10,19,25 251:23 252:3 295:2 375:2,16 376:6 377:3 392:19 441:10,20 442:8,11,19,23 443:19 444:5,23 445:8,24 446:12 446:19 447:6 448:7,24 469:19 470:7,20 473:23 474:3,20 475:4 478:8 | shared 246:22 247:15 441:11 478:8 489:8 sharing 232:17 286:21 376:14,18 430:13,24 432:10 432:20 440:17 445:10 she'd 267:21,23 sheryl 358:3,6 shift 423:13 ship 308:1 shirine 473:15 short 246:20 325:13 shorter 438:3 shorthand 209:20 492:1,9 show 443:16 465:10 showing 331:7 483:25 shown 360:16 shows 380:20 388:25 shut 353:10,11 355:10,14 356:8 sic 241:12 413:9 452:7 455:12 side 375:12 383:15 384:1 sign 493:16 494:5 signature 492:24 493:21,23,23 494:9 significant 236:25 297:4 304:23,24 305:2 353:9 355:10,13,18,20 356:2,7,13,14,20 436:20 437:1,6 |
|---|---|---|--|

CONFIDENTIAL

[significant - special]

| | | | |
|---|---|--|---|
| 459:5 significantly 298:10 403:11 452:4 similar 258:2 341:25 347:3 similarly 253:16 261:18 simon 208:13 209:15 215:3 219:7 221:1 274:15,21 385:9 397:23 485:15 491:1,11 493:5 495:2 simon's 238:24,24 331:15 332:20 337:18 351:3 simple 225:18 299:16,18 simpler 298:13 simpli 329:15 simplification 329:2,8,10,16 332:22,25 333:5 334:9 338:2 347:11,25 simplifications 334:8 simplify 299:24 simply 299:19 simultaneously 233:13 415:12 single 292:20 312:4 339:16 sir 250:15 286:17 448:17 sitting 354:1,10 situations 419:13 421:15 | six 404:14 408:14 409:2 sizing 349:7 skills 317:12 skype 383:23 391:17 slide 295:25 296:7 296:9 297:20,25 303:6 308:18,22 309:25 310:21 312:16 320:22 321:12 322:13,19 322:20 323:7,10 323:16,17 324:3,4 333:24 335:8 353:7 358:24 361:9,21,25 362:6 362:11 363:16,18 364:6,25,25 365:10 366:5,9,17 366:22 367:1,4,7,8 367:17 368:13,14 368:17,18,20,23 369:4,17,21 370:3 370:9,16,24 371:11,12,22 377:15,22,24 378:1,3,9,13,20,22 379:2,11,20,22 380:11,20,25 381:5,18,23,24,25 382:5,9,11 383:6 386:4,4 387:18 416:22 417:22 418:17,19,20 420:7 421:2 422:20 423:22 slides 350:16 435:3 slightly 231:2 279:17 311:23 | slow 454:17 small 243:7 289:11 329:19,25 386:6 396:17 smart 307:3 smith 212:7,14 219:22 484:9,24 social 249:15 367:25 368:6 378:17,18,24,24 425:19 426:8 socialist 477:16 solely 344:11 solemnly 220:19 solid 435:11 solution 254:17 solutions 493:7 solving 263:10 somebody 387:18 391:9 415:25 416:4 473:10 somewhat 284:22 sony 318:4 soon 257:16 399:15 sooner 403:12 sorry 227:2 232:10 234:15 247:24 251:4 254:10 256:15 258:8 276:18 279:11 284:4,5,11 290:16 301:19 313:24 316:13 326:19 328:13 332:4 335:18,19 338:15 340:20 344:14 346:7 347:8 352:19 354:16 357:24 371:7 373:21 | 382:18 387:24 388:1 398:8 401:15 402:2 409:16 416:15 419:6,16,25 423:25 425:22 430:21 431:16 438:15 442:14 444:13 446:8 447:2 454:12,18 457:8,22 458:7,18 458:19 461:7 466:16 468:5,6 472:18 474:6 480:12,13 481:24 484:20,22 487:20 sort 286:7 sorted 283:19 310:19 sorting 263:13 277:23 285:19 sounds 224:5 489:23 source 238:11,19 417:10 speak 283:10 286:3 303:3 335:12 341:6 361:5 391:4 437:11,14 speaking 233:13 316:24 337:12 344:18 415:12 443:9 456:22 480:15 spec 338:9 special 214:6 219:24,25 259:9 262:10 290:12,14 290:22 291:8 295:8,16 319:23 |
|---|---|--|---|

CONFIDENTIAL

[special - strategic]

| | | | |
|---|--|--|---|
| 320:2 325:16,22 325:25 393:6,13 461:14,23 462:5 462:14,18 464:6 464:10,13 468:3,8 468:12,21 480:1 480:25 481:3,7,23 481:25 482:1 specific 225:20,20 238:5 239:13 255:9 263:5 269:10,24,25 287:2,20 292:24 299:11 309:20 315:18 322:15 327:4 330:17 333:22 337:10 341:23 348:23 349:8,9 379:4 380:6 383:8 392:16 420:24 427:24 429:10 448:21 specifically 223:4 235:17 238:17 240:21 257:12 291:22 307:15 321:14,15 336:4 340:15 341:16 344:11 358:16 376:5 377:5 425:23 specificity 391:25 specifics 279:3 304:6 314:23 specified 421:9 specifies 419:6 specify 237:1 257:24 specifying 420:20 | speculate 240:1 255:19,20 267:18 413:10 speculating 266:15 384:18 387:3 speculation 413:9 speed 307:24 spend 369:8,23 370:22 384:10 spenders 369:7,14 369:18 370:14 spent 222:19 474:11 490:2 spin 409:11 spirit 478:18 483:1 spoke 349:10 spoken 235:6 242:19 292:8 spotify 383:22 386:9 spreadsheet 275:22 278:17 398:3 399:14 squiffy 378:11 stage 285:2,3 300:17 338:10 stages 351:2 353:21 354:7 355:5 stamp 304:9,9 stamped 416:7 stance 473:21 stand 280:7 standalone 294:12 standard 263:5 266:12 271:1 306:12 317:13 319:7 345:6 355:17 356:12,14 | 366:4 399:6 420:14,20 460:3 stands 394:18 star 300:24 start 242:24 342:13 343:14 344:6 400:3 started 236:5 starting 220:12 starts 260:23 350:11 state 220:20 237:21 245:20 294:9 297:5 298:8 354:6 363:24 403:25 451:15 461:20 492:2 493:9,12 stated 396:13 442:16 444:21 statement 247:2 253:8 280:10 349:2 419:4 442:10 443:17 444:7,24 470:5,8 470:13,18 478:25 479:9,10,13,14 480:7,10,12,12,21 480:23 481:16,21 482:15 487:4 488:22 statements 385:14 408:2 456:9 460:12 461:2 466:24 467:6,18 476:6 479:12 480:6 states 208:1 209:1 252:12 253:5 254:15 263:3 295:22 296:13 | 297:25 328:2 399:5 403:19 411:1 414:13 415:15 435:2 485:19 486:11 stating 410:15 stats 385:11 stenographic 243:10 326:4 407:13 stenographically 208:20 step 236:25 237:12 304:24 336:4 342:12 343:13 steps 411:3 452:6 steve 473:15 steven 303:4 472:10 473:1,2,3 478:5 stipulation 493:20 stop 251:21 382:14 383:4 483:15 stopped 384:5,20 story 217:5 377:2 484:14 485:9 486:3 489:5 strategic 408:3 408:11 strategic 261:9,16 261:20,20 268:20 268:23 269:5,15 269:18,21,22,25 270:2,6,12,24 271:2,7,13,25 277:8,17 278:17 279:7 282:6 283:1 284:7 288:9,15 289:3,24 291:2,12 291:20,21,24 |
|---|--|--|---|

CONFIDENTIAL

[strategic - t]

| | | | |
|--|---|--|---|
| 292:4,19,21 293:3 293:11,13,19 308:24 309:3,6,9 309:12 310:7 313:25 314:19 315:5,10 317:18 318:10 319:11 322:9,14,21,23 323:1,5,9,14,18,24 323:25 324:1,5,8 324:11,14 325:1,8 331:20,23 332:1,5 332:5,9 353:13 357:6,7 358:12,16 365:17 368:13 378:18,25 379:23 381:6,9 383:12,16 386:10,14 387:10 388:22,25 389:3 391:15 404:12 408:4,16,19,22 410:11 412:2,9 413:1,3 422:15 425:1,5 430:15 431:1 465:25 467:24 468:19 strategy 294:13 stream 252:6,11 252:24 253:1,2,21 253:25 254:7,23 254:25 255:5 256:3,24 257:13 258:3,22 268:21 269:4 312:19,22 313:23 329:5 330:5 415:16,19 426:17 street 211:9 212:9 214:7 486:3,10 489:5,9 | strike 443:4 string 215:11 216:20 217:4 259:14,18 260:17 260:23,24 262:3,6 270:15 274:9 281:5 288:6,15 333:3 337:17 347:7,9 350:20 396:16,18 409:9 472:8 473:13 477:1 478:4,15 484:1 485:5 487:12 strong 293:10 strongly 435:9 structure 278:6 298:19,23 394:13 struggle 234:15,18 stuff 356:23 sub 367:18 subcategories 367:23 378:16 379:5 381:6 388:16 subheading 248:21 subject 215:11 216:17,20 217:4 243:25 259:9 262:8,10 294:5 327:17 331:14 332:19 337:18 350:6,23 361:7 411:3 433:23 472:10 484:13 subjective 355:20 subscribed 492:20 subsequent 256:25 subsequently 255:21 | subset 237:1 substance 248:14 suggest 277:22 317:25 415:18 424:23 465:6 478:21 483:6 suggesting 251:5 306:17 372:25 429:9 suggestion 305:25 308:18 suggestions 429:22 suggests 370:24 422:10 443:18 suite 210:12 211:10 212:10 213:9 sukhar 327:7 433:22 sunday 327:18 super 237:11 404:12 408:3,4,11 408:16,19,22 410:11 supportable 296:15 supporting 477:8 suppose 357:8 supposed 260:3,5 sure 223:20 224:7 227:18 228:23,23 228:24 229:1,12 229:19,19 230:12 232:12,13 234:10 234:20 249:24 254:11 261:18 264:25 272:13 273:12 275:11 281:12 285:1 286:23,24 290:6 | 290:20 293:5 297:8 298:14 311:20,20 325:4 325:14 336:5 339:14,16 340:20 340:22 346:6,6,22 352:1 354:17,19 358:1 364:19 377:11 384:8 390:2,4 393:5 394:9 398:10 401:17,19 419:10 425:13 426:3 427:20,25 428:2 431:18 434:6 435:10 438:2,2 442:3 444:10 446:8 451:15 453:17 454:14,18 457:10,11 471:18 472:14,23 480:14 surface 425:12 432:24 443:23 445:3 455:14 465:22 469:15 470:12 sustainable 435:13 swears 219:12 synonymous 300:6 synonyms 333:23 synthesize 263:4 system 231:19 259:22 264:17 271:19 systems 225:8 459:9 t t 215:8 216:1 217:1 495:3,3 |
|--|---|--|---|

CONFIDENTIAL

[t0 - things]

| | | | |
|--|--|--|---|
| t0 259:9 262:10,12 262:14 263:4 266:2,5,7,9 417:20 417:23 418:4 tab 243:2 266:3,5 268:1 table 300:14 tabs 264:25 265:1 282:6 283:1 tag 377:1 tagable 450:16 453:12,18 take 259:16,19 288:8 297:3 409:4 409:11 410:12 413:9 471:16 taken 209:15 238:8 246:18 260:13 289:3,25 291:3,13,20 326:7 330:1 343:11 380:6 392:10 393:18 406:17 438:9 471:24 492:4 takes 307:24 328:9 473:21 talk 222:15 335:23 336:12,15 339:18 387:24 talked 224:12 252:24 261:3 328:6 330:16 341:14 392:17 412:23 416:16 440:19 450:6 451:12 453:7 463:22 464:20 473:7 talking 257:11 286:2 299:12,14 | 333:25 344:7 352:14 384:11 393:7 403:8 429:11 445:17,19 470:11 474:11 talks 336:5 task 296:19,21 tasked 283:14 taxonomy 405:13 team 250:21 261:16,21 263:19 265:23 278:5 283:23 288:3,3 299:23 302:24 309:18 323:11,13 324:1,10,21 326:14,16,17,22 326:24 329:9 330:12,16 331:21 332:2,2,8,9,10,11 332:12,13,18,23 347:13 357:12,13 357:13,14,17 358:3,6,17 359:18 383:16 391:5 394:17,17,20 397:15,20 398:15 398:17 418:2 423:13 425:17,18 426:6,7 432:7,17 434:3,5,8,8,9,11 434:20,25 463:11 467:2,9 473:4 team's 323:12 teams 324:17 325:6 333:11 394:19 398:2,19 408:6 410:10 411:3 412:4 424:14 | technical 340:2 technically 255:13 281:17 tell 223:7 224:8 247:11 268:4 270:4 306:16 311:8 330:6 372:18 381:25 402:13 408:17 412:8 436:11 439:6 442:5 458:21 459:18 460:16 telling 306:19 temporary 345:24 ten 325:15,20,23 438:4 tend 463:5 term 246:20,23 247:16 281:2 309:6,13 345:15 345:19 365:18 407:7 415:1 428:1 464:25 465:2 terms 225:18 403:13 testified 221:3 270:10 285:23 288:18 321:25 328:17 339:23 346:10 450:17 testify 271:5,6,23 272:3 283:17,21 315:2,13 323:7 324:7 334:25 341:11,12 373:20 373:25 380:14,14 381:15 388:10 451:23 452:15,24 453:6,25 | testifying 370:11 461:24 492:7 testimony 220:20 221:15 222:5 223:1,20 224:4 227:12 232:5 287:23 289:2,24 291:2,12 296:5 307:5 308:13 309:12 318:2 330:15 336:8 345:17 349:3 417:25 421:20 424:20 447:25 491:4 492:11 testing 237:21 texas 213:10 text 245:10 487:3 thank 220:14 242:23 243:12 245:14 246:14,14 248:4 249:6,21 258:13 290:21 295:15 327:8 328:11 334:3 338:24 349:15,19 402:11 454:20 471:20 483:18 487:24 thanks 278:15 478:6 485:16 thing 227:11 274:11 306:10 307:19 317:8,11 337:4 375:3 406:12 407:15 421:1 434:10 483:13 484:3 things 236:16 263:14 269:23 270:11,14 284:16 |
|--|--|--|---|

CONFIDENTIAL

[things - today]

| | | | |
|-----------------------|--------------------------|-------------------------|----------------------------|
| 293:21 309:14 | 419:5 420:13 | tie 274:20 | 410:13 416:1,16 |
| 318:24 324:18 | 423:11 429:8,22 | tied 399:15 | 417:9 418:3,18 |
| 332:24,25 346:16 | 430:7 434:16 | time 219:5 220:8 | 419:22,24 420:18 |
| 355:4,21,25 359:9 | 437:5 453:10,15 | 222:6,7,20 225:1 | 421:17 422:23 |
| 374:7 389:7 396:2 | 453:16 461:21 | 227:10 229:24 | 423:1 426:21 |
| 423:13 | 462:22 483:13 | 230:8 231:9 235:7 | 427:11 432:25 |
| think 222:9,13 | 488:8 489:15,24 | 237:18 238:18 | 434:3,20,22 |
| 228:2,13,19 238:1 | thinking 271:16 | 241:18 242:20 | 437:25 443:12 |
| 238:9,22 241:9,11 | 278:7 305:13 | 250:3,14 251:9 | 444:25 445:13,14 |
| 241:15 242:2 | 310:10 370:17 | 254:22 257:14 | 446:3,24 447:11 |
| 245:1 247:6 250:9 | thinks 440:2 | 261:6,15 262:15 | 448:2,6,13,21,23 |
| 252:23 254:20 | third 210:11 | 262:24 267:11 | 456:8,17 457:14 |
| 257:15 258:14 | 228:14 233:10,24 | 272:5 273:8 | 460:11,25 461:2 |
| 260:3 267:20,23 | 234:1 246:2 248:3 | 283:25 284:21,24 | 466:13,24 467:5 |
| 269:1,12,17,19,22 | 252:4 277:8 | 285:9 289:10 | 467:17 468:25 |
| 269:24 270:10,20 | 318:17,21 333:2,7 | 293:9 297:1 298:7 | 470:13 471:7,12 |
| 272:3,5,18,19 | 366:3,13 368:6 | 298:10,11,25 | 474:2,11,19 475:5 |
| 274:20 276:15 | 414:13 | 299:12 300:2,21 | 475:25 476:8 |
| 278:3 279:2 | thought 309:17 | 304:9,12 305:23 | 479:2,21 481:12 |
| 281:24 284:16 | 407:8,9 422:14 | 307:10,11,18,20 | 487:4,5,11,13 |
| 288:20 291:19 | 423:3 | 307:23 308:4,5,14 | 488:19,22 490:2,6 |
| 296:8,22,24 | thoughts 476:23 | 310:4,14,15 323:3 | 492:5 493:10,18 |
| 298:22 303:1 | thousand 404:1,2 | 325:13 327:4,5 | 493:24 494:7 |
| 304:7 306:8 | thread 262:22 | 328:21,25 329:21 | timeline 235:22 |
| 311:19 312:3,4 | 263:3 281:20 | 331:25 332:1,7 | 240:25 359:14 |
| 323:12,25 328:17 | 286:13 288:17 | 333:1 334:9 335:5 | 375:4,17 376:7 |
| 334:20 335:7 | 335:13,24 336:9 | 335:15,22 336:14 | 415:16 |
| 339:4 351:18 | 410:7,8 412:14,17 | 336:16 337:21 | times 359:17 |
| 353:15 357:10 | 423:8 434:19 | 338:21 339:19 | 429:13 461:13 |
| 358:8 359:15,18 | 484:8 | 343:6,11 344:17 | title 261:14 331:24 |
| 360:21 364:18 | threads 428:12 | 348:20 351:4,22 | 362:11,14 363:19 |
| 365:8 367:9 | 433:7 463:21 | 351:24 357:15,17 | 367:4,7 368:17,18 |
| 368:24 379:8,9 | three 239:8 266:9 | 357:21,22 358:2,4 | 371:11 377:25 |
| 380:18,18 381:13 | 397:20 398:3,16 | 358:7 372:10 | 378:10 385:17,18 |
| 382:17 387:21 | 398:20 399:21 | 373:9 383:17 | 386:5 394:7 |
| 391:7 393:12 | 404:16,18 412:14 | 387:25 389:16 | 413:25 |
| 395:5,9 397:2,2 | 453:3 471:16 | 390:11,21 392:2 | titles 245:25 463:5 |
| 398:23 409:1 | thursday 208:16 | 393:2,10 401:11 | today 221:15,19 |
| 412:14,18 413:7 | 209:18 | 401:24 402:3,24 | 276:17 296:5 |
| 413:15 415:8,22 | ticketmaster | 403:3,6,10 404:14 | 302:22 315:13 |
| 416:1 418:15 | 383:23 391:18 | 405:7 409:6 | 316:9,14,14,18 |

CONFIDENTIAL

[today - unclear]

| | | | |
|---|---|---|--|
| 322:17 330:6,15 336:8 341:12 349:3 354:1,10 358:1 395:14 411:23 429:20 451:24 452:15,20 453:3 458:20 459:18 462:15 473:21 482:12 483:14 today's 403:6 475:2 told 232:6 234:21 462:7 tomorrow 294:10 tool 255:10 276:7 276:10,15 297:17 302:17,19 317:6 327:17 328:4,7,12 328:18,22,25 330:8 339:20 340:5 395:14,22 396:2 402:8 tools 276:5 338:9 343:4,7 402:8 top 274:16,25 276:23,24 277:3 278:14 315:23 321:12 345:5 358:25 359:3,7 396:10 402:21 417:20 469:5 472:9 484:7 topic 235:6 242:12 322:20 324:5 330:24 341:13,19 429:12 433:8 464:17 topics 235:20 380:16 384:23 | track 226:21 383:10 390:5 transaction 326:2 transcribed 492:10 transcript 440:25 441:4 443:1 444:1 444:12 455:25 456:3 469:21 470:24 491:3 492:11,13,15 493:6,8,10,13,13 493:21 494:2,2 transition 223:10 224:23 225:12,15 228:6 229:3,9,23 229:25 230:3,18 230:23 232:8 234:24 238:3 253:18 305:7 320:10 321:21,23 329:4 340:14 347:23 354:23 355:15 372:1,3 373:24 381:7 386:1 391:13 392:12 400:16,22 400:25 401:11,24 406:18 418:24 425:14 426:4 443:3,5 454:7,22 transitioned 443:12,13 445:4 transpiring 335:10 treat 354:22 trending 353:12 357:5 true 333:16 442:3 443:2,5 444:7,24 445:2,23 446:11 | 446:19 447:5 448:7,23 449:10 449:15,18,22 451:8 454:7,22 455:9 458:21 459:19 460:17 465:13 470:14 475:25 478:8,23 479:2,10 482:4 483:7 487:6 489:2 491:5 492:11 trust 252:20 255:4 256:1 435:14 truth 220:22,22,23 try 224:8 229:18 243:15 294:14 335:4 396:23 405:14 438:2 469:23 471:13 480:15 trying 228:18 229:20 230:11 234:9 283:14 299:17 335:9 352:13 444:1 tsang 473:14 turn 220:6 240:24 274:8 294:21 396:18 402:12 413:16 turned 420:18 tv 307:3 364:15 366:14 368:9 378:18,25 twitter 277:17 314:19 315:4,13 322:10 two 239:4,9 258:14 289:14 293:2 307:14 312:17 322:3 | 355:4 402:14 type 313:24 346:2 387:6 407:6 422:6 431:4 types 233:9 236:22 239:19 281:6 313:5 324:18 345:18 347:1 354:22 355:25 417:13 typically 244:13 248:16 258:24 306:8 437:11 u u 399:14 uh 338:4 uids 329:4 ultimate 254:22 298:11 ultimately 246:1 247:6 255:12 264:5 269:13 278:11 284:23 285:14 289:1,12 298:9 304:10,14 306:22 307:12 308:19 314:15 318:8 329:12 330:1 335:10 339:8 344:23 345:24 348:1 359:22 375:21 426:13 443:14 449:9,24 unable 309:4 unaffected 424:11 unaware 252:17 uncertainty 423:9 unchanged 254:25 unclear 229:15 252:16 254:16 |
|---|---|---|--|

CONFIDENTIAL

[unclear - users]

| | | | |
|---|--|---|--|
| 296:19 297:5,7 374:5 381:20 396:3 426:2 uncomfortable 352:13 uncover 477:14 underneath 248:20 understand 221:25 223:20 224:7 226:19 229:18,20 233:15 234:13,14 247:4 265:3,11 266:19 272:11,20 273:9 273:11,12 283:9 285:1 304:8 309:8 311:21 314:14 319:8,14 321:1 322:2,22 339:5,5 389:18 390:1,15 405:15 427:25 434:4 444:2 448:19 450:21 456:21 485:2 understanding 226:9 235:5 236:6 241:24 242:2 247:23 248:5 250:12 251:16 253:21 255:12,16 255:17 256:24 257:20 261:9,15 261:19 262:21 264:16 268:11 270:23 283:18,24 284:14 285:9,11 288:18,24 289:13 292:11 298:25 309:22,22 310:2 310:16 316:22 | 318:3,7 321:17 322:1 324:25 325:5 345:13,22 347:4 377:6 382:25 385:13 389:9 411:11 412:16,21 415:25 422:25 424:8 434:24 451:9 452:12 understands 283:13 understood 239:11 297:13 419:22 452:9 underway 338:11 354:9 447:10 449:6 unique 225:19 420:20 uniquely 225:6 united 208:1 209:1 universal 271:13 386:16 unknown 316:4,23 unquote 456:11 unreasonable 360:21 untrue 419:4 470:8 unusual 305:25 upcoming 252:21 update 274:20 333:15 337:20,25 338:21 342:6 347:8,10 414:2 416:23 423:18 424:14,15 440:1 updated 411:8 452:3 | updates 304:21 331:15 332:20,21 337:19 338:9 450:24 updating 332:23 upgrade 307:2 upgraded 443:22 upset 371:24 url 264:9 usa 482:12 usat 475:17 use 223:25 226:11 231:11,16 234:19 238:25 256:2 262:15 268:21,23 270:2,5 274:3,23 275:9 277:18 279:20 281:2 282:4,24 284:6 292:16,16 303:23 305:15 320:4 321:20 404:12 407:7 408:3,4,11 408:16,19,22 415:1,10 418:1 424:4,7 440:21 452:16 464:25 useful 273:5 342:3 user 208:4 209:4 219:9 224:23,24 225:4,5,6,7,9,13 225:14,19,20 226:2,13,16,18,24 227:9 233:21 234:2 236:11,13 236:16,23 237:2,9 237:12,24 238:19 238:25 239:5 249:16 252:20 253:3 254:6,13 255:3 256:1 258:2 | 258:2,14,15,15,17 258:18,19,19 273:21,24 274:5 277:19 281:2 292:14 293:6,8 301:12,23 302:2 320:7 328:9 356:2 356:2,2 357:1 371:24 372:23 376:13,17,18 377:1,2 388:16,21 389:24 396:2 435:14 442:1 443:7 454:9,24 455:7,11 458:24 459:21 460:20 466:1 467:25 469:3,9 470:3 486:12 493:4 495:1 user's 237:1 239:2 252:16 253:4,13 258:21,23,25 376:22 414:17 users 231:9 233:5 233:5,18,21 236:9 237:6,8 238:5,16 246:21,24 247:14 247:17,19 248:8 249:7,10,11,16,24 250:5,16 251:21 252:1,2,14 254:5 254:16 256:11 275:20 293:7 301:16 302:13,15 304:25 308:1 322:3 356:4 372:16 373:3,7,14 373:16 374:2,10 374:13 375:2,15 375:15,21 376:5,9 |
|---|--|---|--|

CONFIDENTIAL

[users - want]

| | | | |
|--|---|--|---|
| 379:15 388:12 389:1,15,19 390:6 390:8 392:23 430:10 431:5,14 443:24 449:25 459:10 460:5 usual 306:10 | vast 306:14 328:14 328:19 481:18 vc 208:4 209:4 351:4 veracity 342:22 veritext 219:12 244:22 259:22 493:7,9,11 vernal 311:1 327:6 433:22 version 222:24 223:10,25 224:2,3 224:20,20,21 225:10,12,18 226:25 228:7 229:3,9 230:4,4,15 232:8 253:22 256:9 257:1,1,17 299:15 305:13 319:18,19 320:11 347:24 362:4,8 363:9,25 395:7 409:21 411:8 416:7 425:20 426:8,19 432:11 432:21 438:19,21 443:4,6,14,22 445:4 446:15 447:9,15 448:1,1 450:25 454:8,23 455:12,13,21 456:13 457:4,20 458:25 459:22 460:21 461:5 463:9 464:3 465:13,16,23 466:2,10 467:25 469:4,10,16 470:4 487:14 versus 403:14 | vertical 282:3 verticals 282:1 video 208:14 209:19 391:18 440:4,10 472:19 videoconference 208:14 209:19 210:2 211:2 212:2 213:2 214:2 220:12 videographer 214:18 219:4,11 260:11,14 326:5,8 393:16,19 438:7 438:10 471:22,25 490:4 videos 258:25 view 251:8,11 253:12 254:21 285:7 296:24 297:8 305:21 362:2 412:15 viewpoints 435:11 violated 306:5 violating 305:18 vishu 243:24 visibility 371:16 371:20 379:15 387:7,19 388:2 visible 362:1,1 vladimir 243:25 327:7 vocal 268:17 372:13 volume 208:17 215:3 219:7 493:5 495:2 | w w 210:6 214:7 493:1 wait 251:2 325:16 371:5 415:4 454:16 waiting 245:9 366:20 waived 493:23,23 waiving 493:20 walk 259:18 wall 486:3,10 489:5,9 wand 290:11 wangdra 213:14 219:21 want 224:6 226:5 226:7 228:23,24 232:4,5,13 234:20 237:11 240:1,20 246:21 247:14,20 251:23 255:18,20 256:22,23 261:7 261:13,23 267:18 272:19 280:7 281:20 283:9 290:18 291:17 298:14 307:14 337:1 340:20 346:22 351:13 352:14 384:17 387:21 393:9 406:24 407:7 409:9 413:8,9 414:20 420:12 425:13 426:3 428:22 431:18 432:4 434:23 435:10 437:3 459:15 468:15 472:23 474:7 |
| v | | | |
| v1 340:16 346:20 446:3,22 488:11 v1.0 477:5,9,16 v2 314:11 318:6 346:21,21 402:10 446:3 v4 403:20 valuable 271:12 356:4 431:14 432:3 value 268:20,22,23 269:5,15,18,21,22 269:25 270:2,6,12 270:24 271:3,7,14 271:25 272:7,8,18 273:2,6,15 288:9 288:15 289:3,24 291:2,12,20,21,24 292:4,19,21 293:3 293:12,13,19 296:19 297:5,6,12 308:24 309:3,6,9 309:12 310:7 315:5 365:17 371:24 392:21 432:5 459:9 460:5 values 375:14 valuing 431:15 variation 239:12 variety 300:16 426:22 various 417:9 428:5 463:20 | | | |

CONFIDENTIAL

[want - working]

| | | | |
|---|---|---|---|
| 475:20 490:1 wanted 223:19 231:4 253:24 280:3 302:21 316:10,11 319:10 324:24 334:24 337:6 348:13 383:20 384:3 389:14 390:19 395:20 397:13 398:13 430:8 460:2,4 475:12,18 washington 208:23 210:13 way 232:22 233:12 233:18 236:12 251:20 252:19 254:3 255:2,25 264:8 275:2,19 278:6 279:15 283:23 284:15 287:13 288:1,20 290:8 291:20 300:12 303:20 304:4 319:3,3,5 328:22 337:2,13 338:23 339:4 347:22 357:9 359:21 382:4 396:25 448:11 455:2 459:5 475:17,18 479:11 481:6 485:14 ways 232:19 242:15,17 267:1 273:1 304:13 429:22 we've 232:18 246:5,15,18 261:3 281:10 288:6 289:15 318:14 | 325:11 386:13 417:14,15 424:19 424:22 425:16 426:5,11,22 427:12 428:5,11 429:20 435:10 438:1 458:12 470:23 473:7 474:11 475:3 weaver 211:7 web 208:14 209:19 210:2 211:2 212:2 213:2 214:2 website 256:9 257:6 453:22 week 333:9 334:2 weeks 328:2 403:7 403:15 404:14 408:14 409:2 weigh 324:13 welcome 294:14 went 276:23 288:16,23 338:14 338:15 346:25 354:20 361:11 376:20 413:18 424:25 425:3 450:13 453:11 465:10 467:18 487:17 whereof 492:19 whitelist 222:21 224:11,13 230:9 231:10,12,13,18 232:3,25 298:2,16 298:17 333:21,23 334:18 335:1 336:11,22,24 337:8 338:18 340:8,12,24 342:11,18,24 | 350:8 351:2,8,16 353:17,22 354:2,3 354:12 355:1,6 406:25 427:7 whitelisted 223:24 231:24 241:6,14 241:20,24 299:8 300:6,12 308:23 310:6 353:18 389:15,16 390:9 390:12,21,22 404:4,24 405:3,5 405:22 407:9,19 474:13 475:23 476:2,22 487:10 whitelisting 227:14 231:16,17 330:24 338:6,8 339:2,12,17,24 340:3 341:22 380:17 406:9 407:1 whitelists 296:14 328:15,19,23 329:3,17,19,24 330:3 333:13,14 335:22,25 339:20 342:8 458:1 477:15 who've 414:16 wide 270:11 429:11 williams 477:2 478:6 willing 249:19 win 391:17 wind 240:25 273:8 293:9 340:11 418:14 420:3,9,10 window 421:7 488:11 | windows 383:22 391:17 wing 437:9 witness 219:12 246:12 480:2 481:4 492:19 493:13,16 494:2,5 495:24 wondering 254:17 word 244:12,13 245:17 363:5 368:13 395:21 415:11 425:5 wording 240:16 words 240:6 406:5 441:15 444:2 456:4,7 471:3 483:10 work 233:18 252:19 255:3,25 264:11 276:20 282:16,18,21 283:13 286:2 288:22 295:17 297:16 325:7,23 329:11 334:14,22 334:25 337:21 338:25 342:25 343:3 348:1 351:20 352:5,15 353:1 354:1,13 417:7 452:20 worked 236:13 254:3 322:7 351:22,24 356:22 357:2 372:9 383:16 448:12 452:13,20 459:6 473:10 working 245:25 246:22 247:15 |
|---|---|---|---|

CONFIDENTIAL

[working - zuckerberg's]

| | | | |
|--|---|---|--|
| 263:3,7,8 299:23 324:17 332:24,25 336:16 338:7 394:19 403:10 463:10 475:2 workplace 394:11 395:6,10,15 works 371:2 396:5 world 305:8 worry 484:2 worse 373:13 worth 259:18 387:23 worthwhile 412:3 wright 210:9 write 248:18 303:23 307:1,25 328:11 329:1 343:12,13 403:5 488:9,25 writes 270:1 273:4 274:19 277:11 281:23 303:8 351:1 353:5 357:4 360:4 397:13 399:13 411:7,15 411:21 412:1 435:8 475:1,10,16 475:21 476:17 477:4,13 485:15 writing 256:5 270:19 297:11 305:22 309:16 482:16,16 written 250:11,21 262:25 300:3 307:10,21 323:10 370:3 371:23 387:18 418:18 474:20 483:10 | wrong 306:16 382:1 415:22 423:4 473:22 wrote 241:10 251:9 255:24 256:12 262:4 267:22,24 310:5 310:10 321:12 406:3,6 422:20 479:2 wsj 217:5 484:14 485:9 x x 215:1,8 216:1 217:1 307:1 492:15 494:9 xfn 216:12 394:4 394:15,17 403:6 417:11 xperia 318:4 y yahoo 277:14 314:19 315:4,13 322:10 yeah 222:9,11 227:5 229:12 233:15 235:19 238:1 251:14,14 252:23 254:10 255:8,19 258:11 259:20 260:6 267:20 269:1 272:18 277:7 283:11 286:24 295:5,9 301:19 303:18 311:22 313:15 316:2,16 338:19 339:14 346:5,22 350:10 352:23 357:23 | 364:8,12 368:2 373:18 378:20 380:3 381:13 393:3 394:6,24 396:14,21 400:8 403:1 409:17 415:8 425:22 440:13 443:25 457:24 471:21 472:24 484:23 485:14 487:22,22 year 339:9 344:3 409:4 421:7 439:23 years 240:3 270:20 281:20 316:9 336:1 357:18 453:4 470:19 youtube 277:17 314:19 315:4,14 322:10 yup 366:19 402:16 z zoom 208:12 259:23 zoosk 319:21 zuck 353:13 357:6 357:10 358:13,17 zuckerberg 357:9 357:11 433:9,13 433:21 435:2,18 439:15 440:15 441:18 442:16 443:17 444:3,20 455:17 456:9 457:1,15 458:11 460:11 461:2 464:17 466:13,24 467:6,17 468:25 469:17 470:17 | zuckerberg's 440:5 441:4 470:5 |
|--|---|---|--|

Federal Rules of Civil Procedure

Rule 30

(e) Review By the Witness; Changes.

(1) Review; Statement of Changes. On request by the deponent or a party before the deposition is completed, the deponent must be allowed 30 days after being notified by the officer that the transcript or recording is available in which:

(A) to review the transcript or recording; and

(B) if there are changes in form or substance, to sign a statement listing the changes and the reasons for making them.

(2) Changes Indicated in the Officer's Certificate. The officer must note in the certificate prescribed by Rule 30(f)(1) whether a review was requested and, if so, must attach any changes the deponent makes during the 30-day period.

DISCLAIMER: THE FOREGOING FEDERAL PROCEDURE RULES ARE PROVIDED FOR INFORMATIONAL PURPOSES ONLY.

THE ABOVE RULES ARE CURRENT AS OF APRIL 1, 2019. PLEASE REFER TO THE APPLICABLE FEDERAL RULES OF CIVIL PROCEDURE FOR UP-TO-DATE INFORMATION.

VERITEXT LEGAL SOLUTIONS
COMPANY CERTIFICATE AND DISCLOSURE STATEMENT

Veritext Legal Solutions represents that the foregoing transcript is a true, correct and complete transcript of the colloquies, questions and answers as submitted by the court reporter. Veritext Legal Solutions further represents that the attached exhibits, if any, are true, correct and complete documents as submitted by the court reporter and/or attorneys in relation to this deposition and that the documents were processed in accordance with our litigation support and production standards.

Veritext Legal Solutions is committed to maintaining the confidentiality of client and witness information, in accordance with the regulations promulgated under the Health Insurance Portability and Accountability Act (HIPAA), as amended with respect to protected health information and the Gramm-Leach-Bliley Act, as amended, with respect to Personally Identifiable Information (PII). Physical transcripts and exhibits are managed under strict facility and personnel access controls. Electronic files of documents are stored in encrypted form and are transmitted in an encrypted fashion to authenticated parties who are permitted to access the material. Our data is hosted in a Tier 4 SSAE 16 certified facility.

Veritext Legal Solutions complies with all federal and State regulations with respect to the provision of court reporting services, and maintains its neutrality and independence regardless of relationship or the financial outcome of any litigation. Veritext requires adherence to the foregoing professional and ethical standards from all of its subcontractors in their independent contractor agreements.

Inquiries about Veritext Legal Solutions' confidentiality and security policies and practices should be directed to Veritext's Client Services Associates indicated on the cover of this document or at www.veritext.com.

HIGHLY CONFIDENTIAL

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA

IN RE: FACEBOOK, INC., MDL No. 2843
CONSUMER USER PROFILE Case No.
LITIGATION 18-md-02843-VC-JSC

This document relates to:
ALL ACTIONS

HIGHLY CONFIDENTIAL

ZOOM DEPOSITION OF FACEBOOK's 30(b)(6)
CORPORATE REPRESENTATIVE - SIMON CROSS
(Reported Remotely via Video & Web Videoconference)
London, England (Deponent's location)
Monday, June 6, 2022
Volume III

STENOGRAPHICALLY REPORTED BY:
REBECCA L. ROMANO, RPR, CSR, CCR
California CSR No. 12546
Nevada CCR No. 827
Oregon CSR No. 20-0466
Washington CCR No. 3491
JOB NO. 5265189
PAGES 496 - 724

Page 496

HIGHLY CONFIDENTIAL

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA

IN RE: FACEBOOK, INC., MDL No. 2843
CONSUMER USER PROFILE Case No.
LITIGATION 18-md-02843-VC-JSC

This document relates to:
ALL ACTIONS

DEPOSITION OF SIMON CROSS, taken on
behalf of the Plaintiffs, with the deponent located
in London, England, commencing at
3:36 p.m., Monday, June 6, 2022, remotely reported
via Video & Web videoconference before
REBECCA L. ROMANO, a Certified Shorthand Reporter,
Certified Court Reporter, Registered Professional
Reporter.

HIGHLY CONFIDENTIAL

APPEARANCES OF COUNSEL

(All parties appearing via Web videoconference)

For the Plaintiffs:

KELLER ROHRBACK L.L.P.

BY: DEREK W. LOESER

BY: ADELE A. DANIEL

BY: EMMA WRIGHT

Attorneys at Law

1201 Third Avenue

Suite 3200

Seattle, Washington 98101

(206) 623-1900

dloeser@kellerrohrback.com

adaniel@kellerrohrback.com

ewright@kellerrohrback.com

/////

HIGHLY CONFIDENTIAL

APPEARANCES OF COUNSEL

(All parties appearing via Web videoconference)

For the Plaintiffs:

BLEICHMAR FONTI & AULD LLP

BY: LESLEY E. WEAVER

BY: MATTHEW MELAMED

BY: ANNE K. DAVIS

BY: JOSHUA SAMRA

Attorneys at Law

555 12th Street

Suite 1600

Oakland, California 94607

(415) 445-4003

lweaver@bfalaw.com

mmelamed@bfalaw.com

adavis@bfalaw.com

jsamra@bfalaw.com

/////

HIGHLY CONFIDENTIAL

1 APPEARANCES OF COUNSEL(cont'd)
2 (All parties appearing via Web videoconference)

3

4 For Facebook, Inc.:

5 GIBSON, DUNN & CRUTCHER LLP

6 BY: AUSTIN SCHWING

7 BY: ROSEMARIE T. RING

8 Attorneys at Law

9 555 Mission Street

10 Suite 3000

11 San Francisco, California 94105-0921

12 (415) 393-8200

13 aschwing@gibsondunn.com

14 rring@gibsondunn.com

15 and

16 BY: MATT BUONGIORNO

17 Attorney at Law

18 2001 Ross Avenue

19 Suite 2100

20 Dallas, Texas 75201

21 (214) 698-3204

22 mbuongiorno@gibsondunn.com

23

24

25 //

HIGHLY CONFIDENTIAL

1 APPEARANCES OF COUNSEL(cont'd)
2 (All parties appearing via Web videoconference)

3

4 For Facebook, Inc.:

5 GIBSON, DUNN & CRUTCHER LLP

6 BY: HANNAH REGAN-SMITH

7 Attorneys at Law

8 1801 California Street

9 Suite 4200

10 Denver, Colorado 80202-2642

11 (303) 298-5735

12 hregan-smith@gibsondunn.com

13 and

14 BY: PHUNTSO WANGDRA

15 Attorney at Law

16 1881 Page Mill Road

17 Palo Alto, California 94304-1211

18 (650) 849-5206

19 pwangdra@gibsondunn.com

20

21

22

23

24

25 //

HIGHLY CONFIDENTIAL

1 APPEARANCES OF COUNSEL(cont'd)
2 (All parties appearing via Web videoconference)
3

4 JAMS

5 BY: DANIEL B. GARRIE

6 Special Master

7 555 W. 5th Street

8 32nd Floor

9 Los Angeles, California 90013

10 (213) 253-9706

11 dgarrie@jamsadr.com
12
13
14

15 ALSO PRESENT:

16 Ian Chen, Associate General Counsel,

17 Meta Platforms

18 John Macdonell, Videographer
19
20
21
22
23
24

25 // // // //

Page 502

HIGHLY CONFIDENTIAL

| | | | |
|----|-----------------|-------------------------------|-------------|
| 1 | INDEX | | |
| 2 | DEPONENT | | EXAMINATION |
| 3 | SIMON CROSS | | PAGE |
| 4 | VOLUME III | | |
| 5 | | BY MR. LOESER | 508 |
| 6 | | | |
| 7 | | | |
| 8 | E X H I B I T S | | |
| 9 | NUMBER | | PAGE |
| 10 | | DESCRIPTION | |
| 11 | Exhibit 401 | Email dated October 30, 2013 | 541 |
| 12 | | Subject: PS12n Divide and | |
| 13 | | Conquor, FB-CA-MDL-00199890; | |
| 14 | | | |
| 15 | Exhibit 402 | PS12n: Partnerships & | 543 |
| 16 | | Operations Managing the | |
| 17 | | Private Platform, | |
| 18 | | FB-CA-MDL-00199891 - | |
| 19 | | FB-CA-MDL-00199898; | |
| 20 | | | |
| 21 | Exhibit 403 | Email dated 5/1/2014 Subject: | 581 |
| 22 | | Message Summary, | |
| 23 | | META-CA-MDL-0000582988 - | |
| 24 | | META-CA-MDL-0000582989; | |
| 25 | ///// | | |

HIGHLY CONFIDENTIAL

| | | | |
|----|--------------------------|------------------------------|------|
| 1 | E X H I B I T S (cont'd) | | |
| 2 | NUMBER | | PAGE |
| 3 | | DESCRIPTION | |
| 4 | Exhibit 404 | Email dated 12/18/2018 | 602 |
| 5 | | Subject: Private API Review, | |
| 6 | | FB-CA-MDL-02906764; | |
| 7 | | | |
| 8 | Exhibit 405 | PowerPoint Presentation - | 616 |
| 9 | | Reducing Risk from Private | |
| 10 | | APIs Partnerships, | |
| 11 | | FB-CA-MDL-02906766 - | |
| 12 | | FB-CA-MDL-02906770; | |
| 13 | | | |
| 14 | Exhibit 406 | Email dated march 27, 2019 | 634 |
| 15 | | Subject: Escalation Deck | |
| 16 | | Rev, FB-CA-MDL-02088254; | |
| 17 | | | |
| 18 | Exhibit 407 | WS3.j Escalation - Process | 636 |
| 19 | | Proposal, FB-CA-MDL-02088257 | |
| 20 | | - FB-CA-MDL-02088279; | |
| 21 | | | |
| 22 | | | |
| 23 | | | |
| 24 | | | |
| 25 | ///// | | |

HIGHLY CONFIDENTIAL

1 E X H I B I T S (cont'd)

2 NUMBER PAGE

3 DESCRIPTION

4 Exhibit 408 facebook Newsroom - December 706

5 18, 2018 - Let's Clear Up a

6 Few Things About Facebook's

7 Partners, FB-CA-MDL-01789112

8 - FB-CA-MDL-01789115.

9

10

11 PREVIOUSLY MARKED EXHIBITS

12 NUMBER PAGE

13 Exhibit 29 660

14

15 Exhibit 128 668

16

17 Exhibit 400 599

18

19

20

21

22

23

24

25 /////

HIGHLY CONFIDENTIAL

1 London, England; Monday, June 6, 2022

2 3:36 p.m.

3 ---o0o---

4

5 THE VIDEOGRAPHER: Okay. We're on the 03:00:36

6 record. It's 3:36 p.m. London time on June 6th,
7 2022.

8 This is the deposition of Simon Cross,

9 Volume 3. We're here in the matter of In Re:

10 Facebook, Inc. Consumer Privacy User Profile 03:19:04

11 Litigation. I'm John Macdonell, the videographer
12 with Veritext.

13 Before the reporter swears the witness,

14 would counsel please identify themselves, beginning

15 with the noticing party, please. 03:19:16

16 MR. LOESER: Good morning. Derek Loeser

17 from Keller Rohrbach. With me is Adele Daniel,

18 also from Keller Rohrbach.

19 MR. SCHWING: This is Austin Schwing from

20 Gibson, Dunn & Crutcher for the defendant, and I 03:19:33

21 also have with me Matt Buongiorno, Ian Chen,

22 Phuntso Wangdra, and Hannah Regan-Smith.

23 MR. MELAMED: Good morning. This is Matt

24 Melamed from Bleichmar Fonti & Auld for plaintiffs.

25 With me are Anne Davis and Josh Samra. 03:19:52

Page 506

HIGHLY CONFIDENTIAL

1 MR. LOESER: And also with me from 03:19:56
2 Keller Rohrback is Emma Wright.
3 SPECIAL MASTER GARRIE: Counsel Weaver is
4 here as well?
5 MS. WEAVER: Yes. 03:20:14
6 SPECIAL MASTER GARRIE: Okay.
7 This is Special Master Daniel Garrie.
8 I'm here on behalf of the Court.
9 And, Mr. Cross, I will turn my video off
10 and mute myself. If I turn my video on or unmute 03:20:21
11 myself, it is because I want to be seen and I have
12 something to say or to resolve an issue.
13 That said, I'm going to turn it over to
14 the court reporter to kick things off and move
15 things along. 03:20:34
16 THE COURT REPORTER: If you could raise
17 your right hand for me, please.
18 THE DEPONENT: (Complies.)
19 THE COURT REPORTER: You do solemnly
20 state, under penalty of perjury, that the testimony 12:04:19
21 you are about to give in this deposition shall be
22 the truth, the whole truth and nothing but the
23 truth?
24 THE DEPONENT: I do.
25 ///// 12:04:19

Page 507

| | | |
|---|--------------|----------|
| 1 | SIMON CROSS, | 12:04:19 |
|---|--------------|----------|

2 having been administered an oath, was examined and
3 testified as follows:

| | |
|---|----------------------|
| 4 | EXAMINATION(resumed) |
|---|----------------------|

5 BY MR. LOESER: 03:20:55

6 Q. Good morning for me, Mr. Cross. Good
7 afternoon for you. Thank you for being here.

8 This is a continuation of the 30(b)(6)
9 deposition that's -- that we started a few weeks
10 ago, and I will continue to ask you questions about 03:21:09
11 topics 6 and 7 in the notice, and then there are
12 some other discrete topics for which you've been
13 designated, and Mr. Melamed will be examining you
14 with regard to those topics.

15 And you -- you've been put under oath 03:21:25

16 again. You understand you're under oath?

| | |
|----|----------|
| 17 | A. I do. |
|----|----------|

18 Q. And, Mr. Cross, we sent over some
19 additional documents a few days ago. Did you have
20 an opportunity to review those documents to prepare 03:21:39
21 for your testimony today?

22 A. I did have an opportunity to review them,
23 yes.

24 Q. And did you do anything else to prepare
25 for your testimony today other than what you 03:21:48

HIGHLY CONFIDENTIAL

1 previously described? 03:21:50

2 A. I had some more conversations with --
3 with our legal team to review the documents, and I
4 also had conversations with a few additional
5 Facebook employees to help me prepare. 03:22:03

6 Q. Who were those additional employees?

7 A. I have a conversation with Ali Hendrix.
8 I had a conversation with -- excuse me -- the
9 name...

10 With Mark Molaro. 03:22:34

11 And that's, I think, the extent of the
12 additional conversations, meetings I've had.

13 And then I had some additional
14 conversations over email with Steven Elia.

15 Q. And what were your conversations with 03:23:01
16 Ms. Hendrix about?

17 A. We were discussing her work on platform
18 policy enforcement.

19 Q. And you believe that that related in some
20 way to friend sharing or whitelisting of friend 03:23:27
21 sharing on APIs?

22 A. My understanding is it -- it related
23 to -- some of the topics I've been designated for,
24 yes.

25 Q. Including those two topics? 03:23:42

Page 509

HIGHLY CONFIDENTIAL

1 A. I think so, yes. 03:23:46

2 Q. And what about Mark Molaro? Who is Mark
3 Molaro?

4 A. Mark Molaro is a data scientist, as I
5 understand it, at Meta. 03:23:55

6 Q. And what did you speak with him about?

7 A. We discussed his team's work on
8 Facebook's efforts to track API usage.

9 Q. And during what time frame were those
10 updates? 03:24:14

11 A. His team's work is primarily from 20 --
12 2019 onwards.

13 Q. And Steven Elia, what did you speak with
14 him about?

15 A. We were discussing when the rest API was 03:24:30
16 deprecated, I think, and some other whitelisting
17 details.

18 Q. And you said "the rest API"? What --
19 what is that API?

20 A. Sorry. The rest API is the API which was 03:24:55
21 built before the Graph API and continued to exist
22 for some time.

23 Q. And what were the other whitelisting
24 details you discussed with Mr. Elia?

25 A. We discussed how the friend permissions 03:25:15

Page 510

HIGHLY CONFIDENTIAL

1 were finally removed from the Facebook developer 03:25:22
2 platform.

3 Q. And what did you learn from Mr. Elia
4 about that?

5 A. From Steven, I learned that there was a 03:25:29
6 change in, I think, 2018 to make the friend
7 permissions known and usable by -- by any
8 application.

9 Q. And did you talk to Mr. Elia about the
10 other APIs that emit friend data that we discussed 03:25:50
11 previously in your testimony?

12 A. I don't recall specifically what -- what
13 I discussed with Steven, but we -- we discussed
14 like previous whitelists and capabilities that
15 existed around friend data. 03:26:13

16 Q. Okay. So did you figure out by talking
17 to him whether these other APIs that emit friend
18 data continue to operate, or have they deprecated
19 as well?

20 A. Can you let me ask what you mean by 03:26:27
21 "which APIs that continue to emit friend data"?

22 Q. Sure.

23 We talked about a series of APIs that --
24 that we went through and you identified as also --
25 having the ability to emit some -- some friend 03:26:43

Page 511

HIGHLY CONFIDENTIAL

1 data. 03:26:46

2 Can you give a list of those APIs are, or
3 that's -- what I just said is enough to refresh
4 your recollection about that testimony.

5 The events and pages and groups, all 03:27:02
6 those APIs.

7 MR. SCHWING: Object to form.

8 THE DEPONENT: Yeah, that's -- that's a
9 pretty long list of APIs, and we didn't discuss
10 the -- the full gamut of APIs and their deprecation 03:27:14
11 timelines.

12 Q. (By Mr. Loeser) So do you know
13 whether -- these other APIs -- and these are the
14 ones that didn't have the word "friends" in them.
15 But nonetheless, as you testified, they did emit 03:27:24
16 some friend data.

17 Do you know if those are continuing to
18 operate?

19 MR. SCHWING: Object to form.

20 THE DEPONENT: Can we -- can we be 03:27:34
21 specific about the APIs we're talking about here?
22 Because I want to make sure I'm giving you, you
23 know, an accurate answer.

24 Q. (By Mr. Loeser) Sure. Well, three of
25 them are events APIs, pages APIs, groups API. I 03:27:43

Page 512

HIGHLY CONFIDENTIAL

1 think there was taggable friends as well, inevitable 03:27:48

2 friends. We have -- and read stream.

3 A. So -- so relatively large list of APIs.

4 The exact deprecation and removal dates for each of

5 them would be different. And I don't have -- I 03:28:09

6 don't have that to hand.

7 Q. And you don't know offhand whether

8 those -- all or any of those APIs have been

9 deprecated as of today?

10 MR. SCHWING: Compound. 03:28:20

11 THE DEPONENT: Yeah, I mean -- there's,

12 again, lots of APIs there. I -- I do know that in

13 April 2018, the -- the -- the comments and likes

14 edge, as I understand it, was removed from -- from

15 several of those APIs, and the groups and events 03:28:41

16 APIs have since been modified so that they only

17 emit data of people who have authorized the

18 application.

19 Q. (By Mr. Loeser) Okay. And so this is

20 something that if you were to investigate or 03:28:56

21 Facebook were to investigate the details, Facebook

22 could provide an answer as to the extent to which

23 any of these APIs continued to emit friend data and

24 so on today, right?

25 MR. SCHWING: Object to form. 03:29:11

Page 513

HIGHLY CONFIDENTIAL

1 THE DEPONENT: My understanding is that 03:29:14
2 today, Facebook has the infrastructure to determine
3 whether or not which APIs exist and which APIs are
4 emitting user data and whether or not that user
5 data is on behalf of the person calling the API. 03:29:31

6 Q. (By Mr. Loeser) Okay. Thank you.

7 And, Mr. Cross, did you add to your notes
8 for your deposition testimony today?

9 A. I have a -- I have a few pages of
10 handwritten notes that I took in to help me prepare 03:29:48
11 and answer the questions that may come up today.

12 Q. Okay. And --

13 MR. LOESER: Counsel, could we have those
14 notes sent over to us as soon as possible?

15 MR. SCHWING: Yeah. We can -- we can 03:30:01
16 look into that in a break, if that would work for
17 you.

18 MR. LOESER: Great. And the sooner we
19 get them, the better. I mean, ideally we can just
20 get this all wrapped up today and we don't have to 03:30:09
21 come back and do that.

22 MR. SCHWING: I understand, yeah. At a
23 break, we're happy to get those over. I obviously
24 can't focus on it right this second, but we'll work
25 on that. 03:30:22

HIGHLY CONFIDENTIAL

1 MR. LOESER: Okay. Thank you. 03:30:23

2 Q. (By Mr. Loeser) Mr. Cross, you were on
3 the strategic partnership team at some point in
4 your career at Facebook; is that right?

5 A. I was on the platform partnerships team, 03:30:33
6 which is, I think, the name of the team, but the
7 name of the team may have changed over time.

8 Q. Okay. According to your LinkedIn, from
9 August 2013 to January 2014, it appears that you
10 were on the -- something called the "strategic 03:30:49
11 partner team."

12 Is that accurate or --

13 A. I don't recall the -- the formal name of
14 the team, but I refer as the platform partnerships
15 team. It may have been referred to the strategic 03:31:03
16 partnerships team as well.

17 Q. Okay. And were you at one point a
18 strategic partner manager?

19 A. I was a partner manager. I think -- I'm
20 not confident whether or not the word "strategic" 03:31:16
21 was in my official job title, but I worked on that
22 team, yes.

23 Q. Sorry. I'm leaning off camera to look at
24 your résumé.

25 According to your résumé, the title that 03:31:31

Page 515

HIGHLY CONFIDENTIAL

1 you have is strategic product partnerships. 03:31:32

2 Is that -- does that sound accurate to
3 you?

4 MR. SCHWING: Object to form.

5 Foundation. 03:31:42

6 THE DEPONENT: If you're asking what my
7 official title job was -- as per my kind of
8 contract at Facebook, I can't remember that --
9 that. This seems to be what's on my LinkedIn.

10 I couldn't tell if that was like my 03:31:56
11 official Facebook job title at the time.

12 Q. (By Mr. Loeser) Okay. But I assume it's
13 your practice to accurately record your job titles
14 on your LinkedIn?

15 A. Generally, yes. The -- as I say, the 03:32:07
16 team was referred to sometimes as the strategic
17 partnerships team or the platform partnerships
18 team.

19 Q. So at the time -- and I'll just use the
20 terminology in your LinkedIn, understanding your 03:32:20
21 testimony that you just gave.

22 But at the time that you were on the --
23 you were a strategic product manager, how many
24 strategic partners were there at Facebook?

25 A. I don't think there's an official 03:32:40

Page 516

HIGHLY CONFIDENTIAL

1 definition of "strategic partners" for the -- for 03:32:43
2 the company. And I don't know how many partners
3 that the partnership team that I worked on would
4 have considered managed at the time.

5 Q. And so when you were a strategic partner 03:32:57
6 manager, what did you believe "strategic partner"
7 referred to?

8 A. So, again, in my personal capacity when I
9 worked on that team, my understanding is my job was
10 to work with companies and app developers that 03:33:12
11 Facebook had decided to -- to work with or -- or
12 partner with to build Facebook platform
13 integrations.

14 Q. And so if you were to define "strategic
15 partner," that's how would you define it? 03:33:27

16 MR. SCHWING: Objection.

17 THE DEPONENT: Again, in my personal --

18 Sorry. Say again, Austin.

19 MR. SCHWING: Just take what -- you're
20 faster than I am, Mr. Cross. It's later in the day 03:33:36
21 for you, so I need some coffee. Just give me a
22 heartbeat to object.

23 Object to form.

24 THE DEPONENT: So, again, you know, in a
25 personal capacity, my understanding is that I 03:33:48

Page 517

HIGHLY CONFIDENTIAL

1 would -- by partner, I would have been working with 03:33:50
2 company's that the Facebook had decided to work
3 with more closely to build Facebook platform
4 integrations of some -- some -- some nature.

5 Q. (By Mr. Loeser) So -- so all of the 03:34:04
6 strategic partners were partners that had
7 integrations with Facebook?

8 A. I -- I don't think I can answer that
9 question. Like I -- I don't know what the --
10 there's a formal definition of "strategic partner." 03:34:19
11 It's possible that some had -- most of the ones I
12 would have worked with would have had integrations
13 with Facebook in some -- with the Facebook
14 developer platform in some way.

15 Q. And what are some examples of the 03:34:31
16 partners that you worked with?

17 A. So Spotify would be -- would be one
18 example. And then others that I worked with in my
19 team in this -- in this capacity would have been
20 things like Mixcloud, SoundCloud, and Giza and -- 03:34:54
21 and Guardian.

22 Q. And did you work with any strategic
23 partners that -- in which Facebook did not have
24 some form of integration?

25 MR. SCHWING: Object to form. 03:35:13

HIGHLY CONFIDENTIAL

1 THE DEPONENT: So when I was a -- when I 03:35:15
2 was a partner manager, typically I would have been
3 working with entities that had an integration with
4 the Facebook developer platform in some way.

5 Q. (By Mr. Loeser) And was there a -- is 03:35:27
6 there a common understanding at Facebook how
7 Facebook defines "strategic partner"?

8 A. I don't think there's a common
9 understanding at Facebook for what the -- what the
10 definition of the "strategic partner" is. I think 03:35:41
11 different organizations might define their
12 partnerships with entities in -- in different ways.
13 I don't there's a -- a standard definition of -- of
14 what "strategic partner" means.

15 Q. Is a common denominator of strategic 03:35:58
16 partners partners that provide value to Facebook?

17 MR. SCHWING: Object to form.

18 THE DEPONENT: Again, I don't think
19 there's a -- a standard definition of what a
20 strategic partner is. It's a relatively loose 03:36:13
21 definition of -- of entities that -- that the
22 partnerships team would have worked with.

23 Q. (By Mr. Loeser) Are there any strategic
24 partners that don't provide value to Facebook?

25 MR. SCHWING: Object to form. 03:36:29

HIGHLY CONFIDENTIAL

1 THE DEPONENT: Yeah, I don't think 03:36:31
2 there's a definition of "strategic partner," so
3 it's -- it's hard to answer that question.

4 Q. (By Mr. Loeser) Well, however you define
5 it, are there any strategic partners that don't 03:36:38
6 provide value at Facebook?

7 MR. SCHWING: Same objection.

8 THE DEPONENT: Typically as a -- as a
9 partner manager, you'd be working with -- with --
10 with these organizations to build or potentially 03:36:50
11 build integrations that would be valuable to,
12 ideally, the partner, to users, and to Facebook.

13 Q. (By Mr. Loeser) So -- what are -- what
14 are the ways in which a -- a strategic partner
15 could provide value to Facebook? 03:37:10

16 A. Again, I'm not sure that -- as I
17 mentioned before, I'm not sure there's a definition
18 of "strategic partner." So, again, can you ask
19 that question in -- in a way that's like -- doesn't
20 require me to rely on a definition which I -- I 03:37:28
21 don't think is established.

22 Q. You use the term "strategic partner"
23 sometimes in the course of your employment at
24 Facebook, right?

25 A. I would have typically referred to 03:37:40

HIGHLY CONFIDENTIAL

1 "partners" and then sometimes "strategic partners." 03:37:41

2 So like -- I may have used those terms, yes.

3 Q. Okay. And so what was your understanding

4 of the term "strategic partner" if it's different

5 than what you already testified? 03:37:59

6 A. So my -- my understanding --

7 THE DEPONENT: Sorry. Say again, Austin.

8 MR. SCHWING: Asked and answered.

9 Go ahead.

10 THE DEPONENT: Yeah, so my understanding 03:38:06

11 of -- of -- of "strategic partner" would be an

12 entity, an organization that Facebook has partnered

13 with or was considering partnering with to build

14 some form of integration with the Facebook

15 developer platform. 03:38:21

16 Q. (By Mr. Loeser) And back to the

17 questions about value, so let's talk about

18 partnerships generally.

19 Partners -- Facebook partners with

20 developers that provide value to Facebook; is that 03:38:36

21 right?

22 A. Typically the partnerships team would be

23 focused on working with entities that provided

24 value to -- to users by building integrations with

25 the Facebook developer platform. 03:38:51

Page 521

HIGHLY CONFIDENTIAL

1 Q. So you're saying that Facebook doesn't 03:38:53
2 consider whether the partner provides value to
3 Facebook other than the value to the users?

4 MR. SCHWING: Misstates testimony.

5 THE DEPONENT: Yeah, that's not what I -- 03:39:01
6 what I said. Typically when I as working with
7 partners, we were focused on the value that those
8 integrations would provide to -- to user.

9 Q. (By Mr. Loeser) And did you not also
10 consider the value those integrations would provide 03:39:11
11 to Facebook?

12 A. One of the things that -- that would be
13 looked at is how this would be used by users and
14 would those integrations be considered valuable to
15 users, and the value -- the -- how -- how well they 03:39:29
16 would be used by users and the implications for
17 that on the Facebook community.

18 Q. And, again, were there types of value
19 that Facebook took into account that pertained to
20 Facebook as opposed to users? Can you think of any 03:39:47
21 ways that a partnership would provide value
22 directly to Facebook other than the benefits
23 received by the users?

24 MR. SCHWING: Vague. Compound.

25 THE DEPONENT: Yeah, so typically an 03:40:03

HIGHLY CONFIDENTIAL

1 integration would allow people, for example, to 03:40:04
2 post stories back to Facebook, and that would
3 provide content for newsfeed that could be seen
4 by -- by their friends. That would be an example
5 of the value that would be provided. 03:40:19

6 And -- and typically, if there's more
7 content in newsfeed and there's more interesting
8 stories for people to see, they might come back to
9 Facebook more frequently and interact with those
10 stories, and that might increase visitation. 03:40:31

11 Q. (By Mr. Loeser) Is ad revenue a value
12 that Facebook received from some partners?

13 MR. SCHWING: Scope.

14 THE DEPONENT: Sorry. Yeah, my -- my --
15 this is a -- there's a question about the 03:40:48
16 advertising ecosystem, which is not my area of
17 expertise. So, you know, that's very -- I'm not
18 particularly well educated on -- to explain in
19 detail.

20 What I can say from my personal 03:41:03
21 experience, though, is that sometimes developers
22 would want to buy ads to promote their
23 applications, and that would be considered a form
24 of -- of value.

25 Q. (By Mr. Loeser) Value for Facebook, 03:41:20

HIGHLY CONFIDENTIAL

1 right? 03:41:22

2 A. Well, if -- if a developer is buying ads
3 to promote their application, it's because they
4 believe that that's a -- that's a worthwhile thing
5 to do in terms of growing -- growing an application 03:41:33
6 and its user base, and in the process of doing
7 that, Facebook would receive some money for the
8 ads.

9 Q. And what about user data? Don't some
10 developers provide Facebook with -- with user data 03:41:44
11 that is a value to Facebook?

12 MR. SCHWING: Object to form.

13 THE DEPONENT: So they typically --
14 again, most integrations would allow developers --
15 would allow users of those applications to share 03:42:01
16 content back to Facebook, and that would create
17 stories and newsfeed that could be seen by their
18 friends or, in the case of Open Graph, which is on
19 their timeline, which would enrich their Facebook
20 profile. 03:42:20

21 Q. (By Mr. Loeser) And did the partnership
22 group also look at potential opportunities for
23 future relationships with -- with partners as a
24 form of value for Facebook?

25 MR. SCHWING: Object to form. 03:42:33

HIGHLY CONFIDENTIAL

1 THE DEPONENT: Yeah, I'm not sure -- I'm 03:42:34
2 not sure what -- what you mean by that. Like
3 future value -- could you give me an example?

4 Q. (By Mr. Loeser) Well, when you're --
5 when the partnership group was interacting with a 03:42:42
6 partner and was -- did the partnership group also
7 consider whether there was some possibility for
8 future relationships with that partner that could
9 be a value to Facebook?

10 A. I -- it's hard to know what -- what the 03:42:58
11 partnerships team was considering in its -- in its
12 various discussions with -- with developers and
13 partner -- potential partners and potential
14 partners in the past. So I'm not sure I can give
15 an accurate answer to that question. 03:43:10

16 Q. Do you know what an OEM is?

17 A. My understanding that would mean
18 "original equipment manufacturer."

19 Q. Okay. And did -- did Facebook consider a
20 value to Facebook an OEM preloading the Facebook 03:43:27
21 app?

22 A. So I think the partnerships team are
23 the -- are the -- probably the determiners of what
24 that -- of what that means. My understanding
25 from -- from having worked in this area is that 03:43:45

HIGHLY CONFIDENTIAL

1 there was value to users by having the Facebook app 03:43:49
2 on their device, and so it was easy and accessible
3 without having to download it separately.

4 MR. LOESER: Let's go off the record.

5 THE VIDEOGRAPHER: Okay. We're off the 03:44:19
6 record. It's 4:02 p.m.

7 (Recess taken.)

8 THE VIDEOGRAPHER: We're back on the
9 record. It's 4:12 p.m.

10 Q. (By Mr. Loeser) Mr. Cross, does Facebook 03:54:13
11 enter into contracts with -- with some of its
12 partners?

13 A. Yes. There would be typically additional
14 contracts that would have been agreed between
15 Facebook and those parties to cover a number of 03:54:32
16 different things.

17 Q. And what types of partners does Facebook
18 contract with?

19 A. Well, you're asking who Facebook
20 contracts with. Do you mean across the whole gamut 03:54:49
21 of the company?

22 Q. No. I mean with regard to the
23 conversation we're having about the partnership
24 group and the product managers, the conversation
25 we're having now? 03:55:04

HIGHLY CONFIDENTIAL

1 MR. SCHWING: Outside the scope. Vague. 03:55:06

2 THE DEPONENT: Yeah, can you -- just,
3 again, I'm trying to do my best here and, you know,
4 give you an accurate answer.

5 So can you be a bit more specific 03:55:19
6 about -- about the scope of the -- the work that
7 you're -- you're referencing here?

8 Q. (By Mr. Loeser) Well, when you were in
9 the partnership group, did you have partners that
10 you worked with with which Facebook contracted? 03:55:28

11 A. So on a personal level, I don't -- I
12 don't recall working with that many entities that
13 had -- we had contract -- that the Facebook had
14 contracts with when I was manager on the
15 partnerships team. But -- but, yes, there were -- 03:55:49
16 there were contracts that I was aware of between
17 Facebook and some of these partners that covered
18 their use of the Facebook developer platform.

19 Q. And -- and sometimes did Facebook contain
20 in those contracts the ability to access APIs on 03:56:09
21 the partners platform?

22 A. Yeah, it's -- that's possible, but I -- I
23 don't recall any specific examples from my time on
24 the partnerships team.

25 But, yeah, across the -- the history of 03:56:34

Page 527

HIGHLY CONFIDENTIAL

1 the company, it's possible, but I'd be speculating 03:56:36
2 exactly as to what.

3 Q. Okay. And in the context of the
4 relationship with partners, what does "reciprocity"
5 mean? 03:56:52

6 MR. SCHWING: Object to form. Scope.

7 THE DEPONENT: So, again, can you be a
8 bit more specific about like the -- the -- the
9 scope we're talking about here? Is it the Facebook
10 developer platform or -- or partners in general? 03:56:59

11 Q. (By Mr. Loeser) I'm talking about
12 partners with which Facebook contracts and where
13 the contract governs the partner's access to the
14 Facebook platform and Facebook's access to the
15 partners platform. 03:57:14

16 In that context, is there something that
17 Facebook refers to as "reciprocity"?

18 MR. SCHWING: Object to form.

19 THE DEPONENT: I've heard the -- the
20 phrase "reciprocity" used. I'm not sure if it's 03:57:25
21 codified in any platform policies.

22 My personal understanding of -- of that
23 term, it generally refers to really about fairness
24 in sharing data with Facebook, users sharing
25 stories back to Facebook where apps are also 03:57:48

Page 528

HIGHLY CONFIDENTIAL

1 reading data from Facebook so as to contribute to 03:57:52
2 the overall community Graph.

3 Q. (By Mr. Loeser) So when you say
4 "fairness," you mean Facebook provides access to
5 information and Facebook believes it's fair for 03:58:00
6 them, the partner, to provide data back to
7 Facebook?

8 MR. SCHWING: Vague.

9 THE DEPONENT: I think that's a -- that's
10 a very broad statement. Let me -- best to give an 03:58:11
11 example would be useful is if -- developers --
12 let's take the Open Graph set of APIs that existed
13 in around 2011, 2012. If apps were reading from
14 the Open Graph, then it would be considered
15 reasonable that they would be expected to offer 03:58:45
16 users the ability to publish their actions in that
17 app also back to the Graph so that everybody could
18 benefit.

19 Q. (By Mr. Loeser) And so you keep talking
20 about the benefits to users, and I'm wondering if 03:58:57
21 Facebook also identified the benefit to Facebook
22 specifically that results from reciprocity.

23 A. What -- Sorry.

24 MR. SCHWING: Object to form.

25 Go ahead. You can answer. 03:59:15

HIGHLY CONFIDENTIAL

1 THE DEPONENT: So, again, in the example 03:59:20
2 of Open Graph stories in terms of reciprocity, then
3 if users have the ability to share their activity
4 in an app back with Facebook, then that enriches
5 the Facebook newsfeed for their friends and creates 03:59:39
6 additional content for their timeline that might
7 encourage users to spend more time on Facebook.

8 Q. (By Mr. Loeser) And that's a benefit for
9 Facebook?

10 A. Typically Facebook wants its user -- we 03:59:54
11 want our users to find value in using our products,
12 and spending more time on our products is one way
13 that they may express that value.

14 Q. Facebook considers the value that a
15 partner contributes to Facebook when making 04:00:11
16 decisions about what user data to make available to
17 that partner, right?

18 MR. SCHWING: Object. Vague.

19 Go ahead.

20 THE DEPONENT: Yeah, it's a very broad 04:00:26
21 question that's hard to answer. Again, in general,
22 when Facebook is considering partnering with --
23 with an entity or working more closely with an
24 entity, there would be an assessment of the -- the
25 value that is trying to be created for users, how 04:00:48

Page 530

HIGHLY CONFIDENTIAL

1 that would create value for Facebook, and for the 04:00:53
2 third-party developer as well.

3 So typically working with these
4 partnerships requires investments of time and
5 energy from both sides and, you know, the -- the 04:01:07
6 amount of resources to -- to do that are not
7 unlimited, and so there would be some determination
8 by the partnerships team as to whether or not this
9 was a -- a partnership worth pursuing.

10 Q. (By Mr. Loeser) And Facebook considered 04:01:24
11 a partner's value to Facebook when deciding whether
12 to maintain access to certain data after the
13 transition to platform 3.0, right?

14 A. Sorry. "Platform 3.0"? Can you be
15 specific about -- about what you mean? 04:01:42

16 Q. Yeah, I'm sorry. I'm using -- there's a
17 variety of terms used by Facebook, and "platform
18 3.0" -- you tell me if I'm wrong -- is one of the
19 references to the Graph API version 2.0 platform.

20 A. Well, that -- that terminology refers 04:01:57
21 to -- is one of the code names used for this
22 general series of work leading up to what became
23 API version 2 and Login v4 that were launched in
24 April of 2014.

25 And so could you ask the question again 04:02:14

HIGHLY CONFIDENTIAL

1 to make sure I understand. 04:02:20

2 Q. Sure. And with that understanding of
3 what platform 3.0 means, Facebook considered a
4 partner's value to Facebook when deciding whether
5 to maintain access to certain data after the 04:02:31
6 transition to platform 3.0?

7 A. Well, again, can you -- can you help me
8 understand what you mean by "certain data"?
9 Like -- like the specifics matter here, and I want
10 to get -- make sure I give you an accurate answer. 04:02:47

11 Q. Yeah. There were series of APIs that
12 were deprecated in the new platform; is that right?

13 A. In version 2 there were a number of APIs
14 that were deprecated and a number of permissions
15 that were publicly deprecated, yes. 04:03:01

16 Q. And when deciding whether to continue to
17 allow partners to have access to those deprecated
18 permissions, Facebook considered the value that
19 those partners provided to Facebook, right?

20 MR. SCHWING: The question is vague. 04:03:15

21 THE DEPONENT: Yeah, I mean, it -- can we
22 talk about which -- which specific partners you're
23 referring to here and what kind of additional time
24 periods and access we're talking about?

25 Q. (By Mr. Loeser) I would like you to 04:03:34

HIGHLY CONFIDENTIAL

1 answer the question. The question refers to the 04:03:35
2 transition to the new platform, and it refers to
3 deprecated permissions, and it refers to whether
4 Facebook considered the value that partners
5 provided to Facebook when deciding which of those 04:03:46
6 partners to grant continued access to those
7 deprecated functions.

8 So if you could answer the question
9 whether Facebook took into account the value
10 partners provided to Facebook when making that 04:03:58
11 decision, that's all I'm asking.

12 MR. SCHWING: The question is vague.

13 THE DEPONENT: Yeah, so Facebook --
14 sorry. Master Garrie, I see you here. I -- you
15 said earlier that means because you want to 04:04:13
16 intervene and help.

17 I want to give a good answer to -- to
18 this question, and --

19 SPECIAL MASTER GARRIE: I was going to
20 just direct you to answer the question the best you 04:04:21
21 can. So either a "yes," "no," or "I don't
22 understand the question."

23 MR. SCHWING: Special Master Garrie,
24 since you're on and we're -- I don't want to
25 interrupt the questioning here too much, but I do 04:04:32

Page 533

HIGHLY CONFIDENTIAL

1 have a concern that Mr. Loeser is supposed to be 04:04:35
2 asking questions about topics 6 and 7, which relate
3 to friend sharing.

4 SPECIAL MASTER GARRIE: Again, so
5 let's -- 04:04:44

6 MR. SCHWING: And Mr. Melamed is going to
7 be asking questions about the other topics.

8 I want to ensure that there are not
9 multiple lawyers who are asking kind of overlapping
10 questions here today, because I don't believe 04:04:53
11 that's appropriate under our protocol. So I just
12 want to make sure we're focused on actual 6 and 7
13 here before we transition over to Mr. Melamed.

14 SPECIAL MASTER GARRIE: Okay. So one
15 second. We will address that in a second. 04:05:03

16 But, Mr. Cross, what I was going to
17 instruct you is so when you're asked a question,
18 you can answer, "yes," "no," give an explanation or
19 say "I don't understand the question," but
20 otherwise, good question/bad question is not a 04:05:18
21 judgment. He's asked the question. You're to do
22 your best and endeavor your best to answer the
23 question. And you can say, yes, this is how I
24 define this; no, this is how I define that, or so
25 on and so forth and answer the question the best 04:05:32

Page 534

HIGHLY CONFIDENTIAL

1 you can. 04:05:34

2 If you don't understand the question, you
3 can state "I don't understand the question as
4 asked" or something to that effect. Whatever
5 reflects your current state of mind as you 04:05:40
6 understand it. But you do just need to answer the
7 question the best you can.

8 THE DEPONENT: Cool. Thank you,
9 Special Master Garrie.

10 SPECIAL MASTER GARRIE: With that 04:05:51
11 settled, I'll turn it back to Counsel Loeser. Just
12 reask the question.

13 Once he finishes this line of
14 questioning, Counsel Schwing, we will go off the
15 record and address the other question. I just 04:05:58
16 don't want to interrupt Counsel Loeser's flow. I
17 just wanted to weigh in and just communicate to the
18 witness to answer the question the best you can as
19 a 30(b)(6) corporate representative.

20 And then we will -- once the line of 04:06:13
21 questioning is done, Counsel Schwing, we will
22 address your question or your point of concern.

23 Okay?

24 MR. SCHWING: Thank you, Special Master.

25 SPECIAL MASTER GARRIE: Of course. 04:06:23

Page 535

HIGHLY CONFIDENTIAL

1 MR. LOESER: Thank you. 04:06:25

2 Q. (By Mr. Loeser) Mr. Cross, Facebook
3 considered a partner's value to Facebook in
4 deciding whether to maintain the partner's access
5 to deprecated permissions after the transition to 04:06:30
6 platform 3.0, right?

7 MR. SCHWING: Object to form.

8 THE DEPONENT: So in -- in the
9 transition, there were a number of integrations
10 that -- that preexisted that transition, and 04:06:45
11 Facebook would have determined that they would
12 continue to exist based on the value to users and
13 the value that they provided to -- to Facebook and
14 the partner too.

15 MR. LOESER: Okay. 04:07:06

16 I guess we're going off the record.

17 We can go off the record.

18 THE VIDEOGRAPHER: Okay. Thank you.

19 We're off the record. It's 4:25 p.m.

20 (Recess taken.) 04:09:47

21 THE VIDEOGRAPHER: We're back on the
22 record. It's 4:29 p.m.

23 Q. (By Mr. Loeser) Mr. Cross, when deciding
24 whether to provide access to the friend data after
25 2014 for partners, did Facebook consider the value 04:11:41

Page 536

HIGHLY CONFIDENTIAL

1 that the partners could provide to Facebook? 04:11:46

2 MR. SCHWING: The question is vague.

3 THE DEPONENT: Yeah, I -- again, I -- I

4 hope -- I just want to make sure I answer this

5 correctly. A whole bunch of things were considered 04:11:59

6 or would have been considered in determining

7 whether or not to -- to allow integration partners

8 to continue to have access to information after the

9 APIs and permissions were more publicly deprecated.

10 There's a whole -- a whole raft of things that 04:12:20

11 would have been -- would have been considered in

12 those determinations: the value to users, how

13 often they were being used, the contractual

14 determinations, if -- if there were any such,

15 and -- and so on. 04:12:39

16 So a wide range of things would have been

17 considered.

18 When you say "value to Facebook," can you

19 help me define what -- what you mean?

20 Q. (By Mr. Loeser) Well, that's what I've 04:12:50

21 been trying to have you testify about, all the ways

22 Facebook understands value.

23 So if you have some understanding of how

24 Facebook defines value that helps you answer that

25 question, go ahead and say what those things are 04:13:02

Page 537

HIGHLY CONFIDENTIAL

1 and then answer the question. 04:13:04

2 A. So, yeah. One of the things that would
3 have been considered is how often those apps are
4 being used. So, for example, a device integration
5 would have a number of people -- would be -- a 04:13:19
6 number of people would be using it and -- and that
7 would be considered in -- in the overall assessment
8 of whether or not the information -- should
9 continue -- the integration should continue.

10 So there's a -- a wide range of things 04:13:32
11 that would have been considered, including user
12 value and various types of value to Facebook.

13 Q. And revenue received by Facebook from
14 the -- the partner was one of the other things, one
15 of the other forms of value that Facebook 04:13:46
16 considered, right?

17 MR. SCHWING: The question is vague.

18 THE DEPONENT: In terms of -- like, I
19 recall seeing documents which -- which suggest that
20 the revenue from a company was pulled and, 04:14:00
21 you know -- assessed in some way. But I -- I do
22 not recall when, you know, revenue from a partner
23 was part of the assessment for -- for why
24 integration would continue.

25 Q. (By Mr. Loeser) And so as Facebook's 04:14:32

HIGHLY CONFIDENTIAL

1 corporate designee here, can you testify as to 04:14:36
2 whether revenue from the partner was considered
3 when deciding whether to continue allowing a
4 partner to have access to APIs that emit friend
5 data? 04:14:48

6 A. Again, I can see --
7 MR. SCHWING: Sorry.
8 The question is vague.
9 Go ahead.

10 THE DEPONENT: Yeah, I -- I recall seeing 04:14:53
11 documents that were -- where revenue from a partner
12 is considered as part of the overall assessment,
13 but I -- I cannot say whether or not revenue was a
14 determinant in whether or not a partner continued
15 to have access or not. 04:15:12

16 Q. (By Mr. Loeser) And is there somebody
17 else --

18 I'm sorry. I thought were finished.

19 A. Sorry -- continued to have access to
20 publicly deprecated APIs or private APIs. 04:15:25

21 Q. And who at Facebook would definitively
22 know the answer to that question?

23 MR. SCHWING: The question is vague.

24 THE DEPONENT: I -- I think like the --
25 the -- I don't think anyone at Facebook would -- 04:15:40

Page 539

HIGHLY CONFIDENTIAL

1 would be able to know whether or not for every 04:15:43
2 single app, what the decision-making criteria was.
3 So I'm not sure that's -- that's like fully --
4 fully knowable.

5 I -- I don't recall -- and again, on a 04:15:58
6 personal level, I do not recall being in any
7 conversations where revenue was a determining
8 factor in -- whether or not an app was continued --
9 had an app continued to have access to deprecated
10 permissions. 04:16:15

11 Q. (By Mr. Loeser) Okay. And I didn't ask
12 you for a person who would know with regard to each
13 and every partner. I'm just asking you as a
14 general matter who would be the most knowledgeable
15 person on Facebook who can answer the question 04:16:23
16 about the extent to which revenue was taken into
17 account when deciding to, for example, whitelist
18 entities so that they could continue to obtain
19 friend data?

20 A. I think the partnerships leadership team. 04:16:37
21 The partnership team is probably the people who
22 have the -- the -- the closest understanding of --
23 of that. I've spoken to -- to several of those in
24 preparation for this, and none of them represented
25 to me that -- that revenue was -- was a driver in 04:16:56

HIGHLY CONFIDENTIAL

1 the decision-making. 04:17:00

2 Q. And who did you speak to about that?

3 A. I spoke to Ime Archibong, I spoke to
4 Eddie O'Neil, and I spoke to Francisco Varela.

5 (Exhibit 401 was marked for 04:17:15
6 identification by the court reporter and is
7 attached hereto.)

8 MR. LOESER: Okay. We're going to
9 introduce an exhibit, which is -- this is -- it'll
10 come up in a second, Mr. Cross. This is an email 04:17:31
11 from you to Jackie Chang and Brian Hurren dated
12 October 30th, 2013, cc to Ime Archibong. Subject
13 line on the email is "PS12n divide and conquer."

14 Do you see this email, Mr. Cross?

15 THE DEPONENT: I do. 04:17:54

16 Q. (By Mr. Loeser) This is an email that
17 you offered; is that right?

18 MR. SCHWING: I'm sorry, Derek. Just
19 really quickly so we can be on the same page and I
20 can quickly get to documents too. 04:17:59

21 Was that -- was there like a tab number
22 associated with that with the documents that you
23 sent over? I'm wondering if -- I would just like
24 to be able to -- rather than have you launch into
25 it, have some access to look at the document, so -- 04:18:12

Page 541

HIGHLY CONFIDENTIAL

1 MR. LOESER: It will be Exhibit 401. 04:18:15

2 Q. (By Mr. Loeser) Do you see the exhibit
3 numbers in the Exhibit Share?

4 MR. LOESER: Or, Mr. Schwing, you can
5 also just look at the Bates number and match it to 04:18:38
6 what you receive.

7 MR. SCHWING: Okay. Go ahead. I got it.
8 I just had a little technical difficulty there, but
9 go ahead. Thank you.

10 Q. (By Mr. Loeser) Mr. Cross, do you see 04:18:51
11 the email?

12 A. I do see the email.

13 Q. And the date is October 30th, 2013,
14 right?

15 A. Yup. 04:19:00

16 Q. And the email has an attachment. It says
17 "PS12n private platform Ops & Partnership Work
18 Streams.key"; is that right?

19 A. That's right.

20 Q. And that's an attachment that you 04:19:11
21 prepared, correct?

22 A. I -- that's likely.

23 Q. And one of the recipients is Brian
24 Hurren. Who is Brian Hurren?

25 A. Brian Hurren was a partner manager on the 04:19:24

Page 542

HIGHLY CONFIDENTIAL

1 platform partnerships team. 04:19:27

2 MR. LOESER: And we can go to the next
3 exhibit, which is the attached slide deck.

4 (Exhibit 402 was marked for
5 identification by the court reporter and is 04:19:36
6 attached hereto.)

7 Q. (By Mr. Loeser) And while we're waiting
8 for that, Mr. Cross, what was your job at Facebook
9 in October 2013?

10 A. I was a partner manager on the platform 04:19:59
11 partnerships team.

12 Q. And how many partner managers were there
13 at the time?

14 A. On the platform partnerships team or at
15 the company? 04:20:11

16 Q. On the platform partnerships team.

17 A. I'm not sure of the exact number, but it
18 was less than -- less than ten.

19 Q. And we're looking now at Exhibit 402,
20 which is the slide deck that you prepared with the 04:20:26
21 title "PS12n: Partnerships & Operations, Managing
22 the Private Platform."

23 Do you see that?

24 A. I see.

25 Q. So that the record is clear, what is 04:20:39

Page 543

HIGHLY CONFIDENTIAL

1 PS12n? 04:20:41

2 A. PS12n refers to platform simplification,
3 which is another code name for the set of proposed
4 changes that ultimately resulted in the launch of
5 Graph API v2 in April 2014. 04:20:54

6 Q. And how is it that you came to prepare
7 this PowerPoint?

8 A. I don't recall exactly what -- how I came
9 to prepare this -- this PowerPoint. But at the
10 time, my understanding is that there were a set of 04:21:13
11 changes being proposed to the Facebook developer
12 platform, and the partnerships team were trying to
13 understand what the impact would mean for
14 Facebook's -- the -- the developers that the
15 partnership team worked with. 04:21:37

16 Q. And why is it that you were tasked with
17 preparing this PowerPoint?

18 Do you recall?

19 A. I don't recall why I was -- why I was
20 tasked with it, but -- but at time I recall our -- 04:21:46
21 our -- most of the team was engaged in some way
22 and -- in trying to understand the impact on the
23 developer ecosystem and the -- the partners that
24 were managed by the team.

25 Q. And what is Facebook's private platform? 04:22:00

Page 544

HIGHLY CONFIDENTIAL

1 A. So, again, I -- I think the -- well -- I 04:22:09
2 think the best way to answer that is my experience
3 in a personal capacity. What I'm referring to here
4 is the set of APIs, permissions, and so on that
5 were not available to regular developers and were 04:22:23
6 available to developers through whitelists.

7 Q. Okay. You can go to slide 2.

8 Are you looking at -- I'll just represent
9 to you this is the second slide. There's no page
10 numbers on them. But the title of the slide is 04:22:47
11 "PS12n: Partnerships/Operations Goals."

12 Do you see that?

13 A. I do.

14 Q. Could you read each of the bullet points,
15 and after each one, explain what it means. 04:22:56

16 A. I'll -- I'll do my best. This is a slide
17 deck written kind of nearly -- nearly eight years
18 ago now. And so I'll do my best, given the time
19 that's elapsed since.

20 The first bullet is "Protect the Graph," 04:23:18
21 which my understanding is around ensuring that
22 Facebook's information or the -- the user's
23 information is being appropriately used by
24 applications in -- by apps and developers.

25 The next bullet is "but retain 04:23:36

HIGHLY CONFIDENTIAL

1 valid/strategic use cases." 04:23:41

2 Q. Actually, let me pause you for a second.

3 On "Protect the Graph," you mentioned it
4 was to make sure that users' data was used
5 appropriately. 04:23:50

6 Was it also to make sure that Facebook
7 wasn't providing access to user data without
8 getting anything in return from its partners?

9 A. Sorry. I may have to think about that to
10 make sure I give you a correct answer. 04:24:10

11 I don't think this was -- I don't think
12 this refers to -- to reciprocity. It's that -- my
13 understanding, again, given that this slide deck
14 is, you know, is eight years old, and going off
15 what I can read on the page, my recollection is 04:24:29
16 that this is about making sure that the -- the
17 information that is emitted to third parties is
18 being used appropriately and creating value for
19 users.

20 Q. And what is the basis for your 04:24:44
21 understanding of that point?

22 A. The basis for my understanding is my
23 memory from eight years ago, so that's what I'm
24 going off here.

25 Q. Okay. So the next bullet, could you read 04:24:59

Page 546

HIGHLY CONFIDENTIAL

1 that one again, please. 04:25:01

2 A. The next bullet is "but retain
3 valid/strategic use cases."

4 Q. So what did Facebook mean here when it
5 wrote that one of the goals was to retain valid 04:25:11
6 strategic use cases?

7 MR. SCHWING: Object to form.

8 THE DEPONENT: Again, this -- this is a
9 document written by a person, in this case, me. So
10 I don't think that is necessarily Facebook's as a 04:25:24
11 company's understanding. This is one document
12 written -- written a long time ago by -- by a
13 person.

14 I can talk about what -- what I recall
15 meaning or what I think this means, given my -- my 04:25:38
16 personal involvement, which is that there were
17 integrations, for example, that were valuable to --
18 to users that wouldn't be possible under the
19 proposed changes, and -- and those -- those
20 would -- there was a consideration that those -- 04:25:59
21 those should continue, a good example being the
22 Facebook app on BlackBerry. That would be, I
23 think, an app that was considered valuable to
24 users, valuable to BlackBerry, and valuable to
25 Facebook. 04:26:17

Page 547

HIGHLY CONFIDENTIAL

1 Q. (By Mr. Loeser) Okay. And skipping down 04:26:18
2 to the last bullet points "Dev NPS-neutral
3 (short-term), Dev NPS-positive (medium term)."

4 What -- what does that mean?

5 A. So Dev NPS-neutral. So NPS means -- or 04:26:37
6 Dev NPS means developer net promoter score, which
7 at the time was a metric used to survey Facebook's
8 platform developers and understand their level of
9 satisfaction with the Facebook developer platform.
10 And so what this means is that the -- a great 04:27:00
11 outcome for those changes in the short term would
12 be no impact on developer NPS and that over time
13 these changes would be positive for developer NPS.

14 Q. And the title of this slide shows that
15 these bullets relate to the partnership operation 04:27:18
16 goals; is that right?

17 A. The slide says "partnerships/operations
18 goals."

19 Q. And were these, in fact, Facebook's goals
20 at the time? 04:27:29

21 A. Again, I don't think it's fair to
22 represent these as Facebook's goals. This is a
23 skeletal draft slide deck written by one person
24 in -- in kind of mid-2013, so I don't think this
25 was -- this is officially Facebook's goals. 04:27:49

HIGHLY CONFIDENTIAL

1 So no, I don't think it's right to make 04:27:52
2 that representation.

3 Q. Well, were these the goals that were --
4 that were implemented and that Facebook sought to
5 achieve through the transition to the new platform? 04:28:01

6 MR. SCHWING: Object to form.

7 THE DEPONENT: Again, no, I don't
8 think -- I don't think it's right to say that these
9 are Facebook's goals. These are the goals that I,
10 as the author of this document, was proposing or 04:28:12
11 asserting that would be attempted, but I don't
12 think that's right to say that these are Facebook's
13 goals for the overall program.

14 Q. (By Mr. Loeser) Well, you were there
15 through the whole process -- right? -- the 04:28:28
16 transition?

17 A. I was there through -- I was working on
18 this from -- from mid-2013 to kind of mid-2015.

19 Q. Okay. So through the transition, right?

20 A. Yeah, through -- through most of the 04:28:43
21 transition, yes.

22 Q. Okay. So were these the goals you had in
23 mind for that transition and that Facebook
24 implemented?

25 MR. SCHWING: That's compound. 04:28:53

HIGHLY CONFIDENTIAL

1 THE DEPONENT: So, again, I don't -- I 04:28:54
2 don't think it's -- I mean, there are a number of
3 goals that Facebook has -- was attempting to --
4 attempting to achieve with this transition. These
5 four bullets suggest a proposed subset as -- as I, 04:29:07
6 as a person on the partnerships team, understood
7 them in -- in kind of mid to late 2013.

8 So I don't -- I don't think it's right to
9 say that these are -- these are the goals of the
10 overall program. 04:29:21

11 Q. (By Mr. Loeser) Were any of these goals
12 abandoned through the transition?

13 A. I don't think developer NPS was a
14 particular focus of the -- of the -- of the effort.
15 I wouldn't say it was abandoned. It was -- it was 04:29:38
16 considered, but I don't think that was necessarily
17 the primary goal of the set of transitions.

18 Q. Okay. We can go to the next slide.

19 You see that the title of this slide is
20 "PS12n Ops/Partnerships Workstreams"? 04:29:56

21 Do you see that?

22 A. I do.

23 Q. And so you helped come up with the
24 workstreams that would be necessary to implement
25 the transition to the new version of social Graph? 04:30:12

Page 550

A. So, again, this slide deck represents a set of potential proposed things that needed to be done, but the -- I don't think this is representative of what ultimately was -- was done or enacted. So this is a -- my understanding as a partnerships person at a point in time in mid -- in mid-2013 in trying to understand the changes and how to articulate them.

9 Q. Okay. You see on the far right, there's
10 a reference to the "public platform"? 04:30:47

| | |
|----|------------------|
| l1 | Do you see that? |
|----|------------------|

| | |
|----|----------|
| 12 | A. I do. |
|----|----------|

Q. And below that there's a reference to the
"private platform"; is that right?

| | | |
|----|---------------------|----------|
| 15 | A. I see that, yup. | 04:30:57 |
|----|---------------------|----------|

Q. And so at this time in 2013, was there a public platform and a private platform?

18 A. In 2013 -- I don't think it's right to
19 categorize these like as completely separate
20 things. There was no separate public platform and 04:31:13
21 completely separate private platform. What I'm --
22 again, remembering my authoring of this deck eight
23 years ago, is trying to frame that there was the
24 public platform, certainly, which was what regular
25 developers had access to, and -- and then there 04:31:30

04:31:30

HIGHLY CONFIDENTIAL

1 were a set of APIs, permissions, and modifications 04:31:33
2 to that public platform that were available or --
3 or -- or enacted through a set of whitelists, and
4 that's what I'm referring to by -- by the phrase
5 "private platform." 04:31:51

6 There were not distinct like things. One
7 was really a modifier of the other.

8 Q. So if you go to the far left, the first
9 box, it says "public," and then in the box Login,
10 Open Graph, Dialog, Payments, Canvas, non-app 04:32:07
11 friends -- I missed one, plug-ins -- friend data,
12 newsfeed, et cetera.

13 Do you see that?

14 A. I do see that.

15 Q. And what are each of those things? 04:32:18

16 A. I -- I'll do my best to enumerate.

17 Q. I'm sorry. Just generally, are those
18 permissions? APIs? Descriptions of APIs? What --
19 what are they generally?

20 A. It refers to, actually, a pretty wide 04:32:35
21 gamut of different things. Login is the Facebook
22 login dialogue. Open Graph is the ability for
23 developers to read and write structured actions
24 to -- to Facebook. Dialogs is a suite of -- a set
25 of dialogs, user -- user-facing dialogs for a range 04:32:53

Page 552

HIGHLY CONFIDENTIAL

1 of purposes like sharing. Payments refers to the 04:32:59
2 ability of developers to -- to take payments from
3 users inside apps. Canvas refers to the ability to
4 render an app inside Facebook on dub-dub-dub.

5 Plug-ins refers to the ability to embed various 04:33:11
6 social plug-ins, of which were there several, on
7 your website. Non-app friends refers to things
8 like the full friend list. Friend data is
9 referring -- again, my personal recollection --
10 referring to the friend permissions. And then 04:33:25
11 newsfeed referring to the -- to the newsfeed API
12 and so on.

13 So it's actually quite a wide range of
14 things that -- that -- that I was reflecting there
15 as part of the, quote, public platform. 04:33:37

16 Q. And so just help me if I understand this
17 slide correctly. All the things you just listed
18 were available on the public platform at the time
19 that you created this slide; is that right?

20 A. My understanding is that at the time I 04:33:51
21 created this slide in kind of mid-2013, that was a
22 list of things that would be reasonably considered
23 to be part of the public developer platform, the
24 standard Facebook public developer platform.

25 Q. And your arrow that says 1a, 1b directs 04:34:04

HIGHLY CONFIDENTIAL

1 all of those things down to the private platform in 04:34:09
2 the list that says No. 2 there.

3 Do you see that?

4 A. I do see that.

5 Q. And so was the idea that all of those 04:34:17

6 abilities and -- and I don't want to use the wrong
7 word, because there's a variety of different ways
8 to describe those things -- but some are
9 permissions, some are capabilities, some are tools.

10 All of those things will not be available publicly 04:34:30
11 anymore but will instead be available privately; is
12 that right?

13 MR. SCHWING: Object to form.

14 THE DEPONENT: Sorry again. Trying to
15 explain this is -- 04:34:42

16 Yes, my understanding in -- again, on a
17 personal level, writing this deck and remembering
18 what I knew in -- in mid-2013, a lot changed
19 between then and the launch of the ultimate set of
20 changes. 04:34:56

21 Is the -- that yes, there were some
22 things that were going to be -- my understanding at
23 the time was that there was some subset of those
24 things which would no longer be publicly available;
25 i.e., available to -- to regular developers. 04:35:09

Page 554

HIGHLY CONFIDENTIAL

1 Q. (By Mr. Loeser) Okay. And two of those 04:35:13
2 things in particular here on this list are non-app
3 friends and friend data, right? Those were being
4 transitioned from being publicly available to being
5 available on the private platform, right? 04:35:25

6 A. Again, my understanding at the time is
7 that these things would be no longer publicly
8 available to regular developers eventually but that
9 there would be some use cases that would continue
10 to -- to need them and that those would be made 04:35:44
11 available via -- via certain whitelists.

12 Q. So with regard to non-app friends and
13 friend data in particular, those -- let's talk
14 about friend data first. Permissions relating to
15 friend data weren't going eliminated altogether, 04:36:07
16 right? Instead they were going to be made
17 available on the private platform?

18 MR. SCHWING: Object to form.

19 THE DEPONENT: So, again, my
20 understanding writing this slide deck in -- in kind 04:36:18
21 of mid to late 2013 is that these things were
22 being -- were being deprecated from the -- the
23 public surface area, and the -- I -- I was, again,
24 as the author of this deck, trying to imagine a
25 world where there would be some apps that would 04:36:36

Page 555

HIGHLY CONFIDENTIAL

1 continue to have access to this information after 04:36:40
2 it had been publicly deprecated.

3 Q. (By Mr. Loeser) And in -- this slide has
4 the title "Workstreams," right?

5 A. This article contains the word 04:36:55
6 "Workstreams," yeah.

7 Q. Okay. And so you're diagramming the
8 workstreams here, and you have 1a, 1b, 2, 3, and 4?
9 Those are the workstreams?

10 MR. SCHWING: Object to form. 04:37:07

11 THE DEPONENT: Well, I -- I'm not
12 entirely sure what they're referring to. Like,
13 yes, those probably refer to a set of
14 proposed/potential workstreams.

15 But, again, this is -- this is a skeleton 04:37:20
16 deck that -- that -- that's is missing a lot of --
17 a lot of content and I don't think represents what
18 ultimately was done.

19 Q. (By Mr. Loeser) So I know there's a lot
20 of information on this deck, but is there anything 04:37:35
21 in particular that you see that was not done?

22 A. Well, I don't think we had the
23 workstreams that -- that this deck suggests might
24 exist. I don't think any of that was -- was set
25 up. 04:37:53

HIGHLY CONFIDENTIAL

1 And I think there's -- exactly how 04:37:54
2 these -- exactly how the changes to the platform
3 were enacted, I don't think this is necessarily
4 representative of what ultimately happened.

5 Q. With regard to non-app friends and friend 04:38:08
6 data, does this accurately reflect what happened?

7 MR. SCHWING: Object to form.

8 THE DEPONENT: So it -- it's -- it's hard
9 to say this accurately represents what happened,
10 because, you know, there's so much nuance and 04:38:25
11 detail.

12 But at a high level, there were, you
13 know, apps that continued to have access to some
14 friends data after the -- the public deprecation
15 of -- of those permissions. 04:38:47

16 Q. (By Mr. Loeser) Okay. We can go to the
17 next slide.

18 Do you see the title of this slide is
19 "Workstream 1a-Simon"? Does that refer to you?

20 A. That would refer to me. But as I 04:39:02
21 mentioned in -- in the previous -- when we
22 reviewing the previous slide, I don't think this
23 represents in any case what -- what happened.

24 Q. Well, let's go through and figure out
25 what did and what didn't. 04:39:18

1 Were you involved in preapproving apps 04:39:20

2 for the new PS12n capabilities?

3 A. I was involved later as a product manager

4 on -- on the platform team trying to determine

5 what capabilities and -- and what lists needed to 04:39:32

6 as exist to support the needs of the partnerships

7 team.

8 Q. Do you see the goal that's written on

9 this slide for your workstream?

10 A. Well, again, I want to be -- I want to be 04:39:51

11 clear. This is a proposed workstream. I don't

12 want to say that this is workstream that I assumed

13 ownership of and enacted upon. This is, again --

14 if you scroll through the rest of the deck, it's

15 broadly empty. 04:40:03

16 So I think it's just worth noting for the

17 record that this is a skeleton deck, not a final

18 deck in any form.

19 Q. Can you read the goal that you have for

20 the workstream that you anticipated at this time. 04:40:13

21 A. Again, what's on the slide here is "Goal:

22 Exempt strategic use cases from PS12n impact."

23 Q. And what does that mean?

24 A. Again, my understanding from the -- from

25 the time is -- as -- as -- as involved in this is 04:40:30

HIGHLY CONFIDENTIAL

1 that there were some integrations and partnerships 04:40:35
2 that were considered valuable to -- to users and
3 the developers and Facebook and that those
4 integrations would be expected to continue or there
5 was a -- there was the -- the thought that some of 04:40:51
6 those integrations would continue after the changes
7 to the public developer platform. And this is
8 referring to an analysis to understand -- well, not
9 an analysis -- a proposed workstream to understand
10 how the API changes would affect those 04:41:11
11 integrations.

12 Q. And the idea was that for certain
13 strategic -- what you define as strategic use
14 cases, they would be exempt from the deprecations
15 and instead continue to have access to APIs or 04:41:28
16 permissions that no longer were public?

17 A. Again, at the time here, a lot changed in
18 terms of how the changes were implemented and
19 exactly what was implemented, but there was a
20 thought in the partnerships team -- it was thought 04:41:50
21 in the partnerships team that there would be ways
22 or cases where some of these integrations would
23 continue to -- to be able to operate even through
24 the public deprecations of those permissions and
25 APIs. 04:42:10

HIGHLY CONFIDENTIAL

1 Q. And this goal that's described here, that 04:42:10
2 is, in fact, what Facebook did, right?

3 A. I don't think that's representative --
4 that's -- that's -- appropriate to characterize
5 that as -- as what Facebook did. There were, as 04:42:24
6 we've discussed, certainly some integrations -- for
7 example, a device integrations that continued to --
8 to operate after the changes to -- to the public
9 surface area.

10 But like I don't think it's appropriate 04:42:38
11 to say that all strategic use cases, however that's
12 defined, were -- were exempt.

13 Q. Well, did Facebook exempt some strategic
14 use cases from PS12n impact?

15 A. Well, again, like there's no formal 04:42:58
16 definition of -- of "strategic" as -- as we've
17 discussed. But there were apps and integrations
18 who -- who -- where their functionality continued
19 after the public deprecation of -- of certain
20 permissions and APIs. 04:43:16

21 Q. Okay. Let's look at the method you
22 describe here.

23 Do you see No. 1? I take it that's a
24 yes?

25 A. Sorry. Do I see No. 1? Sorry, Derek. 04:43:28

HIGHLY CONFIDENTIAL

1 Say again. 04:43:30

2 Q. Do you see that there's a heading

3 "Method"?

4 A. Yes, I see that, yeah.

5 Q. Then under "Method," there's a series of 04:43:35

6 numbers, 1 through 8.

7 Do you see that?

8 A. I do, yeah.

9 Q. And the first one is "collate largest

10 apps using to-be-deprecated features." 04:43:43

11 Do you see that?

12 A. I see that, yup.

13 Q. Did that happen?

14 A. There was some analysis -- I recall some

15 analysis being done to assess which apps were using 04:43:54

16 to-be-deprecated features, yes.

17 Q. Okay. Do you see No. 2, "segment into

18 our four functional Groups: Games, Non-games,

19 Mobile, Marketers/PMD"? Do you see that?

20 A. I see that. 04:44:11

21 Q. That happened, right?

22 A. I don't recall if that happened as -- as

23 prescribed here. There was a number of different

24 categorizations that were -- were used across

25 different times. I -- I don't recall if those -- 04:44:22

Page 561

HIGHLY CONFIDENTIAL

1 that categorization or taxonomy was ultimately 04:44:25
2 used.

3 Q. Do you recall the slide deck we went
4 through previously that categorized different apps
5 in those -- those categories? 04:44:35

6 A. I remember reviewing a slide deck. Did
7 they match to -- it's possible they matched to
8 those categories, but I can't be 100 percent sure.

9 Q. Did you see No. 3, "each functional group
10 to define their whitelisting criteria"? 04:44:48

11 Did that happen?

12 A. Again, speaking from my personal
13 recollection, I don't recall whether or not that
14 happened. I don't think that happened.

15 Q. Did anyone define any whitelisting 04:45:04
16 criteria?

17 A. I don't think there was a formal written
18 set of whitelisting criteria defined, no.

19 Q. So it was just ad hoc?

20 MR. SCHWING: Object to form. 04:45:19

21 THE DEPONENT: I wouldn't characterize it
22 as ad hoc. The -- the decisions were made on -- on
23 a case-by-case basis through conversation with --
24 with the partnerships team primarily.

25 Q. (By Mr. Loeser) Okay. Did anyone come 04:45:34

HIGHLY CONFIDENTIAL

1 up with any type of principles that would be 04:45:35

2 applied to deciding whether to whitelist?

3 A. I don't recall a formal set of principles

4 or framework that was -- that was used. Ultimately

5 the -- the set of integrations -- the -- were 04:45:48

6 whitelisted was relatively small and was managed

7 through -- on a case-by-case basis through the

8 partnerships team.

9 Q. Take a look at No. 4, "assess apps for

10 the new Capabilities against those criteria." 04:46:01

11 Did that happen?

12 A. Again, on -- on a personal level, I -- I

13 think -- assess apps for the new capabilities. I

14 mean, it's -- it's hard to answer whether or not

15 that happened, but certainly some new capabilities 04:46:21

16 were created and some apps were added to them in

17 order to allow them to continue accessing

18 information, accessing -- in order for their

19 activity to continue.

20 So it's possible that meets that -- meets 04:46:40

21 that criteria, but it's hard to say whether or not

22 that -- that bullet was met as written.

23 Q. Okay. So No. 5 is "review

24 recommendations with Doug, Chris Daniels, Group

25 Leads (e.g. Sean Ryan)." 04:46:53

Page 563

HIGHLY CONFIDENTIAL

1 Do you see that? 04:46:55

2 A. I see that.

3 Q. Were whitelisting decisions reviewed by
4 those leads?

5 A. I don't think individual -- every 04:47:02

6 whitelist decision was reviewed with -- with those
7 folks. It would have been some conversations about
8 generally how to proceed.

9 Q. Could partner managers just make a
10 decision on their own to whitelist and that was 04:47:19
11 that?

12 A. Again, like my -- I was not on the
13 partnerships later on when the actual whitelisting
14 decisions were -- were being discussed within the
15 partnerships team, because the -- that didn't need 04:47:35
16 to happen until kind of late 2014, early -- early
17 2015.

18 So a partner manager certainly could
19 propose that their -- that a given partner needed
20 to be whitelisted, and then that would be a 04:47:58
21 discussion between them and the product team.

22 Q. No. 6 is "physically add apps to
23 capabilities."

24 That happened, right?

25 A. Well, were some new capabilities created, 04:48:15

Page 564

HIGHLY CONFIDENTIAL

1 and apps were added to them later on in 2014 and 04:48:17
2 '15.

3 Q. No. 7 is "at launch, outreach to apps to
4 let them know they've been whitelisted."

5 That happened, right? 04:48:29

6 A. I don't recall whether or not that
7 happened or what the -- what the communications
8 were between the partnerships team and the -- and
9 the various partners and app developers.

10 Q. And who at Facebook would know whether 04:48:41
11 there was outreach to apps to let them know they'd
12 been whitelisted?

13 A. I think the partnerships team would
14 have -- the platform partnerships team would have
15 handled some, the games partnerships team might 04:48:53
16 have handled others, and the mobile partnerships
17 team would have -- would have handled others,
18 and -- and -- and the marketing or PMD would have
19 handled others.

20 Q. And the last method on your list here is 04:49:07
21 "get necessary contracts in place" -- that's No. 8
22 -- (see Workstream 2)."

23 Did that happen?

24 A. Again, it's -- it's hard to know whether
25 or not this -- you know, precisely what that means 04:49:22

Page 565

HIGHLY CONFIDENTIAL

1 or what happened. This is, again, a slide deck 04:49:24
2 that was written as -- as a draft and skeleton
3 slide deck proposed in mid-2013, and ultimately
4 the -- the changes were not enacted for -- for --
5 for more than a year and a half later. 04:49:35

6 Some -- as part of this process, I do
7 recall contracts that existed previously being
8 checked to see whether or not there were, for
9 example, any expiry, any change notification
10 periods in those contracts, to determine whether or 04:49:56
11 not the excess was contractually required to
12 continue.

13 Q. And you see the "Who?" heading at the
14 bottom left on your slide?

15 A. I do. 04:50:16

16 Q. And do you see it has four -- the same
17 four segments referred to above: "Games, Mobile,
18 OEM carrier/OS, non-Games, marketers/PMDs"?

19 Do you see that?

20 A. I see that. 04:50:35

21 Q. Which of those are integration partners?

22 A. Integration partners cuts across Mobile
23 and -- and Non-Games.

24 Q. Okay. So the marketers, PMDs, and Games
25 are not considered integration partners? 04:50:50

HIGHLY CONFIDENTIAL

1 to these four categories. 04:52:10

2 Q. (By Mr. Loeser) So, again, which of
3 these four categories would fall outside of the
4 concept of integration partners?

5 A. Again, my understanding is that -- of the 04:52:24
6 integration partners that -- that I've -- that I've
7 seen defined and referred to, some of them were
8 mobile, integrations and OEMs, carriers and OS's.
9 Others would be -- might be considered non-Games.

10 Q. Do you see the "Why?" heading in your 04:52:44
11 slide here?

12 A. I see "Why" on the slide.

13 Q. And that is a "why" that's -- describes
14 workstream 1a, "preapprove apps for new PS12n
15 capabilities"; is that right? 04:53:05

16 A. Again, I think we're just making sure we
17 characterize this slide appropriately for -- for
18 the record. This is a proposed workstream that,
19 you know, I don't think was ever enacted upon.
20 What's on the slide is a proposed workstream for -- 04:53:18
21 with the title "Preapprove apps for PS12n
22 capabilities," and there's the "why" bullets there.

23 But I -- I want to be clear that I don't
24 think this represents a -- a formal workstream that
25 was enacted upon, in my recollection. 04:53:36

Page 568

HIGHLY CONFIDENTIAL

1 Q. Okay. So the goal "exempt strategic use 04:53:38
2 cases from PS12n impact," right?

3 A. I see that on the slide, yes.

4 Q. Okay. And then the "why" is down below.

5 Could you -- could you read what is -- 04:53:51
6 what is wrote under the "why."

7 A. What's under the "why" on the slide is
8 "retain strategic uses cases" and "keep the right
9 partners happy."

10 MR. LOESER: Mr. Cross, would this be a 04:54:08
11 good time for a break, or you want to continue?

12 THE WITNESS: Yeah, now's a great time
13 for a break.

14 MR. LOESER: Why don't we take a
15 ten-minute break. 04:54:14

16 THE VIDEOGRAPHER: Okay. We're off the
17 record. It's 5:12 p.m.

18 (Recess taken.)

19 THE VIDEOGRAPHER: We're back on the
20 record. It's 5:25 p.m. 05:07:21

21 THE DEPONENT: I'm just going to shut the
22 door to my office because my kids are about to
23 arrive home so it'll get noisy. So my apologies.

24 MR. LOESER: No problem.

25 THE DEPONENT: Thank you. Sorry. 05:07:44

Page 569

HIGHLY CONFIDENTIAL

1 Q. (By Mr. Loeser) Okay. We can go to the 05:07:45
2 next page of this slide deck. I just have a few
3 more questions.

4 Do you see the title of this slide,
5 "Workstream 1b-Bryan"? 05:07:54

6 A. Yup, I see that title on the slide.

7 Q. Okay. And can you read the -- what it
8 says under the -- the header.

9 A. It says "set up a channel and process for
10 impacted apps to apply for whitelists." 05:08:10

11 Q. And the Bryan up here, is that
12 Bryan Hurren?

13 A. That would refer to Bryan Hurren, yes.

14 Q. Okay. And your idea was this workstream
15 would be assigned to him? 05:08:24

16 A. Again, this is a potential proposed
17 proper workstream in a draft slide deck without a
18 huge amount of detail around it, but yes, as the
19 author of this deck, I was imaging such a
20 workstream could exist, and if it did, then Bryan 05:08:40
21 might be the one to lead it.

22 Q. And was -- did Facebook set up a channel
23 and a process for impacted apps to apply to
24 whitelists?

25 A. I don't recall Facebook setting up a 05:08:54

HIGHLY CONFIDENTIAL

1 channel or process for impacted apps to apply for 05:08:57
2 whitelists.

3 Q. Do you know if that happened or not?

4 A. I don't -- I don't know if -- I don't
5 recall a channel or process being -- being stood 05:09:09
6 up. That suggests something public or formal
7 that -- that I don't think happened.

8 So -- so no, in my estimation, no, a
9 channel and process for impacted apps to apply for
10 whitelists was not set up. 05:09:26

11 Q. Okay. We can go to the next slide.

12 Do you see the header on this slide is
13 "Workstream 2-Jackie"?

14 Do you see that?

15 A. Yeah, I see that. 05:09:45

16 Q. And is that Jackie Chang?

17 A. That would refer to Jackie Chang, yes.

18 Q. And could you read what it says below the
19 header.

20 It says "Design post-PS12n whitelisting 05:09:55
21 process and requirements."

22 And did that happen?

23 A. No, I don't think that -- that happened
24 as expected. Today Facebook has a process for
25 handling whitelisting, so if we're talking up to 05:10:18

Page 571

HIGHLY CONFIDENTIAL

1 today, then yes, such a process could be said to 05:10:20
2 exist.

3 But in the 2013, '14, '15 time frame, I
4 -- I don't think it's right to say a PS12n
5 whitelisting process was set up. 05:10:32

6 Q. And you goal you provided here, could you
7 read the goal.

8 A. The goal in the slide is "exempt
9 strategic use cases we didn't catch in 1a," but
10 I'll note that it's identical to what's on the -- 05:10:43
11 the previous slide, which is indicative of this
12 building a skeleton slide deck rather than one
13 that's formally reviewed or published.

14 Q. And 1a refers to -- refers to what?

15 A. Again, going back to my recollection 05:11:05
16 of -- of this deck, 1a would refer to what's shown
17 here as a proposed workstream 1a.

18 Q. Which was to preapprove apps for new
19 PS12n capabilities, right?

20 A. That's what the slide says for that 05:11:26
21 proposed workstream, yes.

22 Q. And were there strategic use cases that
23 were not caught in the preapproval process?

24 A. Again, I'm -- I'm not sure it could be
25 said that a pre -- pre -- a preapproval process 05:11:41

HIGHLY CONFIDENTIAL

1 was -- was -- was set up. 05:11:45

2 So like -- it's hard to say that -- that
3 that's -- that's what happened. So yeah, hard to
4 say that happened.

5 Q. Do you see the "Why?" on -- on this 05:12:02
6 slide?

7 A. Yeah, the "Why" on this slide, yes.

8 Q. Okay. Could you read the "Why."

9 A. It says "manage risk from granting access
10 to sensitive data and features." 05:12:17

11 And the second line is "capture
12 decision/comments to enable proper auditing in the
13 future" -- "in the future."

14 Q. And starting with the first line, "manage
15 risk from granting access to sensitive data and 05:12:31
16 features," what was the risk you were -- had in
17 mind here?

18 A. So, again, answering this in a -- in a
19 personal capacity as the author of this deck and
20 trying to remember what was in my head eight years 05:12:44
21 ago, I'll do my best.

22 There's a number of private APIs and
23 whitelists which were made available to -- to apps,
24 and I -- I'm interpreting here the company would
25 want to make sure that that -- those -- those APIs 05:13:08

Page 573

HIGHLY CONFIDENTIAL

1 and permissions were being used appropriately. 05:13:12

2 Q. And what did you mean by "used
3 appropriately"?

4 A. So that can mean a range of things,
5 depending on -- on the API, depending on the 05:13:26

6 permission, depending on the whitelist. For
7 example, there were APIs -- like one example might
8 be off.login, which was made available to external
9 developers under a whitelist. And the way that
10 that was implemented by the developer was important 05:13:52

11 to be done correctly, and you would want to ensure
12 that people who had that capability would be
13 implementing it correctly and that -- that
14 implementation would remain correct over time.

15 Q. So one data was -- one of the types of 05:14:19

16 sensitive data that Facebook removed from the
17 public platform and made available to certain apps
18 and partners on the private platform, right?

19 MR. SCHWING: Object to form.

20 THE DEPONENT: So there were a range of 05:14:39

21 permissions and APIs that were previously available
22 to any developer that became only available to
23 whitelisted developers after API v2 launch.

24 Q. (By Mr. Loeser) I appreciate that, but
25 that's not the question I asked, so I'll -- I'll 05:14:57

HIGHLY CONFIDENTIAL

1 read you the question again, and if you could just 05:14:59
2 try to answer the question.

3 A. My apologies.

4 MR. SCHWING: Argumentative.

5 Q. (By Mr. Loeser) So I'll read it again. 05:15:07

6 "Friend data was one of the types of
7 sensitive data that Facebook removed from the
8 public platform and made available to certain apps
9 and partners on the private platform."

10 MR. SCHWING: Object to form. 05:15:18

11 THE DEPONENT: So, again, the -- the --
12 one -- some of the information that was made
13 available via private APIs was access to the friend
14 permissions and the newsfeed APIs. I -- so those
15 were made available via the private API surface 05:15:36
16 area.

17 Q. (By Mr. Loeser) And when Facebook did
18 that, which it did for strategic use cases, these
19 apps and partners were granted access to sensitive
20 data and features, right? 05:15:48

21 MR. SCHWING: Object to form.

22 THE DEPONENT: I think the definition
23 of -- of "sensitive" is somewhat subjective. And
24 there's a range -- what we're talking about here is
25 a set of private capabilities, APIs and platforms 05:16:02

Page 575

HIGHLY CONFIDENTIAL

1 that go way beyond just friend data. There's all 05:16:05
2 kinds of APIs and -- and things that were -- that
3 are being referred to here.

4 So like I think there's a wide range of
5 things that were considered as this part of the 05:16:22
6 slide.

7 Q. (By Mr. Loeser) Okay. I'm asking
8 specifically about friend data. So can you answer
9 the question specifically with regard to friend
10 data? 05:16:32

11 MR. SCHWING: Vague.

12 THE DEPONENT: So, yeah, I'm -- I'm
13 trying to do my best and answer the -- answer the
14 question as best I can, right.

15 Q. (By Mr. Loeser) Let me ask you a 05:16:45
16 different question, then, and see if we can't get
17 to the bottom of this.

18 When you said "managing risks from
19 granting access to sensitive data and features,"
20 did you have in mind that granting access to friend 05:16:53
21 data was sensitive data and features?

22 A. Again, answering in personal capacity,
23 not necessarily. I'm referring here to a range of
24 private APIs that -- that existed and were made
25 available, not just friend data. And so I don't 05:17:10

Page 576

HIGHLY CONFIDENTIAL

1 think that this pertains just to friend data or 05:17:14
2 friend permissions.

3 In -- in this slide, based on my
4 recollection, I'm talking about a proposal for --
5 for -- for whitelisting processes for a range of 05:17:26
6 APIs that -- that might be considered important to
7 govern.

8 Q. And that range included friend data,
9 right?

10 A. After the deprecation of -- of API 05:17:39
11 version 1 from the public surface area, the friend
12 permissions and data were made available only to
13 whitelisted applications. Again, I think the
14 definition of whether or not that's considered
15 sensitive is -- is subjective, which is why I'm 05:17:53
16 being -- trying to be clear in answering your --
17 your question.

18 There was certainly, after the public
19 deprecation, a set of private capabilities that
20 were not -- were not available to regular 05:18:06
21 developers.

22 Q. Does Facebook consider friend data
23 sensitive?

24 MR. SCHWING: Object to form.

25 THE DEPONENT: I think Facebook considers 05:18:16

Page 577

HIGHLY CONFIDENTIAL

1 any data important to govern properly. And so like 05:18:20
2 even -- I don't think it's right to just
3 characterize friend data as -- as sensitive. I
4 think Facebook takes privacy of information very
5 seriously and does a -- a number of things to 05:18:37
6 ensure that data is being properly used.

7 Q. (By Mr. Loeser) Mr. Cross, I appreciate
8 that. I asked you a very specific question. So
9 I'll ask it again. If you could answer yes or no
10 or let me know if it's not possible to answer yes 05:18:52
11 or no, I'd appreciate it.

12 Does Facebook consider friend data
13 sensitive?

14 A. I don't think I can answer that on behalf
15 of Facebook, because I don't know how to answer 05:19:05
16 "does Facebook think." I can answer from -- you
17 know, from a personal capacity, but it's hard to --
18 to determine whether or not Facebook thinks --
19 would concern it as -- as quite sensitive.

20 Again, I think the definition of 05:19:21
21 "sensitive" is -- is somewhat subjective.

22 Q. Is there any definition of "sensitive"
23 Facebook uses that does not include friend data?

24 A. I don't think Facebook has a formal
25 definition of "sensitive," right? This is why I'm 05:19:38

HIGHLY CONFIDENTIAL

1 the time of the transition to Graph -- 05:23:21

2 A. The system that exists today did not
3 exist in -- in 2013.

4 Q. And did Facebook have some other rigorous
5 system previously? 05:23:31

6 MR. SCHWING: Objection. Vague.

7 THE DEPONENT: Yeah -- we -- there's --
8 there's a tool for managing -- for managing
9 whitelists and who -- who has access to what.

10 There was no centralized process to track 05:23:43
11 how or why a given app was accessed -- was added to
12 a whitelist.

13 Q. (By Mr. Loeser) Okay. We can go to the
14 next document.

15 You should see in a moment an email from 05:24:03
16 you to Gareth Morris and to yourself dated
17 May 1st, 2014. Subject "message summary."

18 (Exhibit 403 was marked for
19 identification by the court reporter and is
20 attached hereto.) 05:24:15

21 THE DEPONENT: I see, yeah.

22 Q. (By Mr. Loeser) And it appears that this
23 email captures a chat between you and Mr. Morris;
24 is that right?

25 A. Yes, I think this represents a chat 05:24:30

Page 581

HIGHLY CONFIDENTIAL

1 thread. 05:24:33

2 Q. Who is Gareth Morris?

3 A. Gareth Morris is a partner engineer at

4 Meta.

5 Q. And by sending this message to yourself, 05:24:45

6 was that a way of keeping a record of this chat?

7 A. I'm not -- sorry. I don't think I sent

8 this to myself. The way this is represented is

9 likely an artifact of Facebook's retention systems.

10 Q. Okay. And May 1st, 2014, the date of 05:25:04

11 this -- this chat, that was after the public

12 announcement at the new platform at the 2014 F8; is

13 that right?

14 A. Yes. The -- the changes were announced

15 on April 30th, 2014, so this would have been after 05:25:27

16 that.

17 Q. So at this point the public announcement

18 had been made and process of transitioning

19 deprecated permissions from the public to the

20 private platform was underway, right? 05:25:38

21 A. At this point, yes, the migration from

22 API v1 to v2 for public developers had begun, yes.

23 Q. And looking through this chat, it appears

24 that it's in chronological order, so we can stop at

25 the top and you can read through it. 05:25:58

HIGHLY CONFIDENTIAL

1 Mr. Morris says to you, "I expect we'll 05:26:00
2 hear questions like this from developers impacted
3 by friends_*deprecations: 'Is there any way for
4 trusted partners to continue to access full friend
5 list/friends_*data in v2.0?'" 05:26:17

6 Did I read that correctly?

7 A. You read that correctly.

8 Q. And then Mr. Morris goes on to say "On
9 full friend list, I know we will whitelist certain
10 apps that have meaningful experiences (Tinder, 05:26:30
11 etc) but do you know what the criteria are and if
12 we are communicating it externally at all?"

13 Did I read that correctly?

14 A. You read that correctly.

15 Q. So at this point in time, Facebook had 05:26:43
16 made the decision to whitelist certain apps that
17 have meaningful experiences; is that right?

18 MR. SCHWING: Objection. Vague.

19 THE DEPONENT: I don't think it's right
20 to say that Facebook had decided to whitelist 05:27:01
21 certain applications. So -- so no, I don't think
22 that's like -- it's right to say that Facebook had
23 made that decision.

24 Q. (By Mr. Loeser) Would -- but that
25 Facebook's plan generally though, right? 05:27:11

HIGHLY CONFIDENTIAL

1 MR. SCHWING: Objection. Vague. 05:27:14

2 THE DEPONENT: Again, I don't think -- I

3 don't think it's right to say that's Facebook plan

4 generally. My -- speaking from my involvement at

5 the time, there were discussions about what -- 05:27:27

6 which -- which apps should or should not be

7 whitelisted for -- for different things, and there

8 was an active discussion about what would be done,

9 so I don't think any -- many decisions had been

10 made. 05:27:45

11 Q. (By Mr. Loeser) Okay. And Mr. Morris

12 goes on to say to you "And I'm guessing no

13 exceptions to friends_* in v2.0."

14 Did I read that correctly?

15 A. You read that correctly. 05:27:56

16 Q. Okay. Read for me your next four chats.

17 A. So the next four things say "We may not

18 even whitelist Tinder for non-app friends."

19 The next thing is "there's whitelists for

20 all these things." 05:28:19

21 "But we'd only grant in strategic use

22 cases."

23 "Like the upcoming Nokia maps

24 integration."

25 Q. So it sounds like at the time you 05:28:33

Page 584

HIGHLY CONFIDENTIAL

1 believed there were -- there were whitelists that 05:28:34
2 were in place or going to be in place, right?

3 A. At the time --

4 MR. SCHWING: Objection.

5 THE DEPONENT: -- again, using -- 05:28:41

6 MR. SCHWING: Sorry, Mr. Cross. I
7 just -- give me one second to object. I know it's
8 a -- it's a -- challenging to do.

9 Objection. Vague.

10 Go ahead. 05:28:50

11 THE DEPONENT: Again, going back to my
12 personal recollection at the time is that it was
13 thought that there would be whitelists for various
14 things or it was possible to make whitelists for
15 various things -- by "these things" referring to 05:29:05
16 the set of changes in API version 1 to version 2.

17 So my -- my recollection, again, eight
18 years ago is that -- there was -- there was either
19 some whitelist in place or discussion about whether
20 or not additional whitelists should be in place. 05:29:27

21 Q. (By Mr. Loeser) And -- and what you told
22 Mr. Morris in -- response to his question about
23 whitelists, "but we'd only grant in strategic use
24 cases"; is that right?

25 A. What it says on -- in the thread is that 05:29:45

HIGHLY CONFIDENTIAL

1 we'd only grant in strategic use cases, yeah. 05:29:46

2 Q. And that was your understanding of what
3 Facebook was going to do, right?

4 A. Was that -- again, I don't think it's
5 appropriate to say that's my understanding of what 05:29:56

6 Facebook was going to do. My understanding at --
7 at -- that's my understanding at -- at the time is
8 that -- there would be some -- some whitelists and

9 some apps added to them. But -- and my
10 understanding at the time was that that would be in 05:30:16
11 some certain use cases.

12 Q. Well, this doesn't say "some certain use
13 cases," does it? It says "strategic use cases,"
14 right?

15 A. It says "strategic use cases," yes. 05:30:27

16 Q. And it was your practice when
17 communicating with your colleagues to provide them
18 with truthful and accurate information?

19 MR. SCHWING: Objection. Vague.

20 THE DEPONENT: I do my best normally 05:30:41
21 to -- to communicate my understanding of things
22 accurately, yes.

23 Q. (By Mr. Loeser) So Mr. Morris goes on
24 and writes, "For someone like Rumble, it's just a
25 'sorry, this stuff is in gone in v2.0,'" right? 05:30:56

Page 586

HIGHLY CONFIDENTIAL

1 Did I read that correctly? 05:31:01

2 A. You read that correctly.

3 Q. And read for me your -- your next two

4 chats which are your response to his question.

5 A. The next two lines are "Yep. Unless we 05:31:11

6 see some strategic value in their existence."

7 Q. So you confirmed for Mr. Morris that

8 perhaps like Rumble, he should tell them there are

9 no exceptions for friend deprecations and this

10 stuff is gone in v2.0, right? 05:31:32

11 A. I'm not confirming anything here in -- in

12 the sense that it's a formal or final answer. I'm

13 representing my understanding of the -- the

14 position at the time.

15 Q. Okay. And that is the approach, as you 05:31:52

16 say, "unless we see some strategic value in their

17 existence," right?

18 A. What it says here is "unless we see some

19 strategic value in their existence."

20 Q. And does "we" -- 05:32:05

21 A. I can provide --

22 Q. I'm sorry.

23 A. Sorry. You -- please ask your question.

24 Q. Yes. The "we" here refers to Facebook,

25 right? 05:32:14

A. The "we" here would refer to the partnerships team and what the partnerships team considered -- the partnerships team and the platform leadership team would consider strategic value.

6 Q. And the partnership team and the platform
7 leadership teams were acting on behalf of Facebook;
8 is that right?

9 MR. SCHWING: Objection. Vague.

10 THE DEPONENT: These are people employed 05:32:46
11 by Facebook for sure. But like -- it's hard to --
12 to -- to say that "we" means Facebook in a -- in a
13 holistic sense.

14 Q. (By Mr. Loeser) All right. And if you
15 go down the chat, Mr. Morris then writes "Okay. 05:33:15
16 I'll meet with them next week as they're working
17 with some of our game developers, though I'm not
18 sure exactly what services they are providing."

19 Did I read that correctly?

| | | |
|----|-----------------------------|----------|
| 20 | A. You read that correctly. | 05:33:25 |
|----|-----------------------------|----------|

21 Q. And what did you say in your next chat?

22 A. The next line is "we can do anything for
23 people we deem strategic."

24 Q. Okay. And your next chat, what is --

| | | |
|----|-------------------------------------|----------|
| 25 | what did you say in your next chat? | 05:33:42 |
|----|-------------------------------------|----------|

```
1      A.   The next line is "See Bing firehose"                                05:33:44
2      etc., etc."
```

5 A. So, again, I'm relying on my recollection 05:33:55
6 here of a -- of an integration from eight years
7 ago, so I'll do my best to describe it generally.

| | | |
|----|--|----------|
| 14 | Q. And did Facebook have a contract with | |
| 15 | Bing? | 05:34:33 |

18 Q. And did Facebook get some data back from
19 Bing?

21 THE DEPONENT: I'm not sure what was in
22 the contract or -- or -- or what the -- how the
23 integration worked in detail.

| | | |
|----|---|----------|
| 25 | A. My understanding is that Firehose is | 05:34:57 |
|----|---|----------|

HIGHLY CONFIDENTIAL

1 technical mechanism by which that integration was 05:34:59
2 powered.

3 Q. Do you know it was called Firehose?

4 A. I don't know why it was called Firehose I
5 wasn't around for the -- for the naming of it. But 05:35:10
6 Firehose is a -- a term that's used in the
7 industry.

8 Q. And to mean what?

9 A. To mean an API that -- that streams
10 information from one entity to another. 05:35:29

11 Q. And was it qualitative at all in terms of
12 the quantity of information?

13 A. I don't think there's anything definition
14 of what "quantity" means. But in this case, to
15 make that integration work, my understanding is 05:35:48
16 it's streaming public content from Facebook to
17 Bing, which you can imagine being not an
18 insignificant amount of information.

19 Q. And what is your next text?

20 A. The next line is "but these perms are 05:36:04
21 gone for a reason."

22 Q. And what does "perms" mean?

23 A. In this context, "perms" means the friend
24 permissions.

25 Q. And read your next text, please. 05:36:15

HIGHLY CONFIDENTIAL

1 MR. SCHWING: Objection. Vague, and it's 05:37:36
2 outside of the scope of the deposition topics.

3 You can answer.

4 THE DEPONENT: So yeah. I mean, you're
5 asking me a really -- a personal question here. I 05:37:45
6 think it's -- it's reasonable to be concerned, as
7 evidenced by the changes made to the platform,
8 that apps might be using information from mine --
9 to mine data.

10 Q. (By Mr. Loeser) We can put that exhibit 05:38:12
11 aside.

12 I'm going to read a statement to you. If
13 you can tell me what Facebook means by this
14 statement.

15 And I'll to read it slowly so that 05:38:38
16 Rebecca doesn't get mad.

17 "If an application asks permission from
18 someone else to access your information, the
19 application will be allowed to use that information
20 only in connection with the person that gave the 05:38:52
21 permission and no one else."

22 A. Sorry. Can you repeat that again. It
23 would helpful to -- do you have it written,
24 could -- could present? I want to make sure I'm
25 fully understanding it. 05:39:12

Page 592

HIGHLY CONFIDENTIAL

1 Q. I'll read it again. I don't have it 05:39:13
2 written. And this relates to friend sharing, which
3 is why -- which is why I'm asking.

4 "If an application asks permission from
5 someone else to access your information, the 05:39:23
6 application will be allowed to use that information
7 only in connection with the person that gave the
8 permission and no one else."

9 MR. SCHWING: Mr. Loeser, is there -- you
10 read it. I'm confused a little bit what you're -- 05:39:39
11 is there a question associated with it? I don't
12 understand.

13 MR. LOESER: Yes. I would like to
14 understand what Facebook means by that statement.

15 MR. SCHWING: Is there a document that -- 05:39:54
16 I'm sorry. I just want to make sure. Is there a
17 document that this is in that you could help the
18 witness with? He's asked to see what it is.

19 MR. LOESER: Yeah, I can write it down on
20 a piece of paper and we can put it up as an 05:40:03
21 exhibit. It'll take a couple minutes, but -- this
22 is just my effort to understand how friend sharing
23 worked at Facebook.

24 So we can -- we can come back to that.
25 And -- we'll write it down on a piece of paper and 05:40:16

HIGHLY CONFIDENTIAL

1 put it up as an exhibit. That's probably an 05:40:20
2 effective way to do it.

3 MR. SCHWING: Okay. If you're -- and
4 let's -- I don't want to take long on this, but if
5 you're representing Facebook said something in a 05:40:27
6 document, to be able to give the document, I think,
7 is the appropriate way to approach the issue.

8 But if you want to move on to the next
9 topic, that's fine.

10 MR. LOESER: Yeah. We'll come back once 05:40:38
11 we create an exhibit.

12 MR. SCHWING: Just to be clear, I will
13 ask that -- at that time that you actually give
14 the -- the document as opposed to excerpting it.

15 Q. (By Mr. Loeser) Okay. We're going to 05:40:54
16 screen share this sentence, and if you could tell
17 me what this means as Facebook's corporate
18 designee, I'd appreciate it.

19 A. It's hard --

20 MR. SCHWING: I'm sorry. Let me state an 05:41:09
21 objection.

22 I object to taking snippets of
23 unidentified documents and -- and putting them
24 before the witness and asking the witness to
25 explain what Facebook means by something that's 05:41:19

HIGHLY CONFIDENTIAL

1 excerpted. You should have the entirety of the 05:41:22
2 document.

3 THE DEPONENT: Yeah. It's hard for me to
4 answer this -- this question, again, accurately
5 without understanding where this came from and -- 05:41:33
6 and the context behind it. There's not enough here
7 for me to give a reasonable answer, I think.

8 Q. (By Mr. Loeser) Can you read the
9 sentence and give me your -- your understanding of
10 what it means. 05:41:53

11 MR. SCHWING: Special Master Garrie, I
12 don't want to difficult during this deposition, but
13 I would appreciate -- I'd like to make a motion
14 under Rule 30 that if -- if they're asking about
15 a -- a document and a purported Facebook document 05:42:03
16 that they actually use the document so that the
17 witness can properly answer.

18 SPECIAL MASTER GARRIE: Yeah, I was going
19 to rule, but the witness answered the question.

20 Counsel Loeser, do you have the entirety 05:42:13
21 of the document?

22 THE DEPONENT: I don't, and there's no
23 requirement for me to show this witness any
24 documents. I'm asking the question --

25 SPECIAL MASTER GARRIE: No, no. 05:42:25

HIGHLY CONFIDENTIAL

1 MR. LOESER: I'm asking the witness about 05:42:26
2 this document.

3 SPECIAL MASTER GARRIE: Just so I
4 understand, you're asking them -- you're asking the
5 witness what this sentence means as a 05:42:33
6 representative of Facebook, not in reference to a
7 particular document Facebook has, but just
8 generally?

9 THE DEPONENT: That's right. I'm just
10 asking what this -- if this sentence means anything 05:42:42
11 to Facebook.

12 MR. SCHWING: But, Special Master Garrie,
13 he's representing that this is a statement by
14 Facebook, and it's snipped out from something.
15 We have no idea what it is. 05:42:51

16 SPECIAL MASTER GARRIE: Well, Counsel
17 Loeser --

18 MR. SCHWING: If we could talk about it
19 off the record, that would be wonderful.

20 SPECIAL MASTER GARRIE: Yeah, can we -- 05:42:56
21 well, on the record, let me just get clarification.
22 Counsel Loeser, is this, you're
23 representing, a statement from Facebook?

24 MR. LOESER: This is a statement that
25 Facebook has made, yes. 05:43:08

Page 596

HIGHLY CONFIDENTIAL

1 SPECIAL MASTER GARRIE: Do you have any 05:43:12
2 further context as to who, what, when, or where?
3 MR. LOESER: I do --
4 SPECIAL MASTER GARRIE: Or do you not --
5 MR. LOESER: Yeah, we can introduce it. 05:43:22
6 I'm surprised the witness isn't familiar with this
7 statement, but we can introduce the statement.
8 There's no requirement for us to --
9 SPECIAL MASTER GARRIE: I'm not saying
10 there is -- there is -- 05:43:35
11 MR. LOESER: Fine. That's fine. We're
12 happy to introduce the statement, but I want to
13 understand about this statement is what it means to
14 Facebook. So we'll introduce the statement --
15 SPECIAL MASTER GARRIE: Right, so -- 05:43:44
16 MR. LOESER: -- the policy.
17 SPECIAL MASTER GARRIE: So if you -- if
18 you want to know what the statement means in
19 general from what Facebook says, that's different
20 than saying this is a statement Facebook has made, 05:43:53
21 what does it mean to Facebook.
22 So I'm just trying to understand which of
23 the two courses you're going down.
24 MR. LOESER: I started on the first
25 course and I'm happy to stay there. This is a 05:44:05

Page 597

HIGHLY CONFIDENTIAL

1 statement, what does it mean to you. If it means 05:44:06
2 nothing to him, then he can say that.

3 SPECIAL MASTER GARRIE: Yeah, got it.
4 That's all I needed to know.

5 So, Counsel Schwing, I appreciate your 05:44:12
6 position, but I don't think it's an issue, so he's
7 simply as Facebook's 30(b)(6) representative, what
8 does this statement mean.

9 MR. SCHWING: Okay. And just -- I
10 appreciate that, Special Master. For the record, I 05:44:24
11 think it's difficult, if not impossible, without
12 any context with respect to what the document is or
13 the time frame or anything like that to pluck out
14 the statement and have him ask, answer on behalf of
15 the company about what this means. There's just 05:44:41
16 not enough context.

17 I would appreciate it if the document
18 would be -- would be put up, since counsel
19 has indicated that they have the document.

20 MR. LOESER: Yeah. You know, we can cut 05:44:53
21 this short. We can just introduce -- it's already
22 an exhibit, so we can just refer to the exhibit.
23 We can focus on this.

24 And, again, the purpose of my asking
25 Mr. Cross this is -- 05:45:00

HIGHLY CONFIDENTIAL

1 SPECIAL MASTER GARRIE: I understand. 05:45:01

2 MR. LOESER: Yeah.

3 SPECIAL MASTER GARRIE: Yeah, I get it,

4 Counsel Loeser. So, I mean, if you want to do that

5 for Facebook, you're under no obligation to do 05:45:07

6 such, but if you want to produce it, that would be

7 probably be effective in aiding in the testimony

8 you're trying to obtain. But you're under no

9 obligation to do such. So...

10 MR. LOESER: We're going to go ahead and 05:45:22

11 introduce it, just because I think it satisfies

12 Mr. Schwing's concern.

13 MR. SCHWING: I would appreciate that,

14 Mr. Loeser. Thank you.

15 MR. LOESER: This is Exhibit 400. 05:45:34

16 This is the data use policy.

17 Yeah, and the reason why we didn't send

18 this over to Mr. Cross is we didn't actually intend

19 to introduce the exhibit. But to satisfy counsel's

20 concerns about the context of this statement, we're 05:45:54

21 introducing the data use policy.

22 Q. (By Mr. Loeser) And my question is

23 really very specific. It's not about what anyone

24 else might think this means; it's specifically what

25 Facebook thinks this means. I'm asking the 05:46:09

HIGHLY CONFIDENTIAL

1 question so that I can understand how Facebook 05:46:12
2 believes friend sharing works.

3 So if we can -- we'll try and find the
4 statement.

5 MR. SCHWING: While you're scrolling for 05:46:27
6 that, I object to using documents that were not
7 provided to us in advance as required under our
8 protocol.

9 And the policies are outside of the scope
10 of -- of Mr. Cross's deposition topics. 05:46:35

11 Q. (By Mr. Loeser) Okay. So, Mr. Cross,
12 the data use policy is in front of you.

13 And do you see the statement "If an
14 application asks permission from someone else to
15 access your information, the application will be 05:46:54
16 allowed to use that information only in connection
17 with the person that gave the permission and no one
18 else"?

19 Do you see that statement?

20 A. I do see that statement. 05:47:04

21 Q. What does that statement mean?

22 MR. SCHWING: Outside the scope of the
23 deposition.

24 THE DEPONENT: So, yeah, I'm not an
25 expert in interpreting Facebook's platform policies 05:47:12

HIGHLY CONFIDENTIAL

1 or data use policies. I think there are other 05:47:15
2 people that your -- that are testifying who are
3 better placed to interpret that.

4 I can give you a personal interpretation
5 or my personal understanding of that, but I think 05:47:30
6 there are -- there are other people who -- who are
7 more knowledgeable about this subject than me that
8 would give you a more accurate answer.

9 Q. (By Mr. Loeser) Okay. And I'm really
10 trying to understand it from the technology 05:47:42
11 standpoint, which is why I'm asking you.

12 So why don't you go ahead and give me
13 whatever explanation for this statement that you
14 can.

15 MR. SCHWING: Object to the scope. 05:47:52

16 Go ahead if you can answer in your
17 personal capacity.

18 THE DEPONENT: Yeah, I'll answer in my
19 personal capacity and my understanding having --
20 having worked on this area but not being an expert 05:48:02
21 in interpreting or enforcing Facebook's policies in
22 this matter.

23 My understanding is that what this means
24 is when an app ask permission -- "permissions" in
25 this case, I think, refer to -- to the Facebook 05:48:18

Page 601

HIGHLY CONFIDENTIAL

1 platform permissions -- to access your information, 05:48:20
2 my interpretation of that is the friend
3 permissions. The -- or indeed the read stream
4 permission, which includes friends information.

5 The -- the -- the data that the app 05:48:38
6 receives through a given user's access token from a
7 technical capacity should be used to enhance the
8 experience of that user in the application only.

9 Q. (By Mr. Loeser) Thank you.

10 Okay. We can move on. 05:48:57

11 MR. LOESER: Tab 53.

12 (Exhibit 404 was marked for
13 identification by the court reporter and is
14 attached hereto.)

15 Q. (By Mr. Loeser) You're going to see in a 05:49:33
16 moment an email from KP to several people,
17 including Marne Levine and Ime Archibong, and the
18 date of the email is December 18th, 2018, and the
19 subject is "private API review."

20 There's an attachment to this email, 05:49:52
21 "private_API_review_vF_pptx;
22 private_API_review_vF.pdf."

23 Do you see that?

24 A. I see that, yeah.

25 Q. And this is Exhibit 404. 05:50:07

Page 602

HIGHLY CONFIDENTIAL

1 A. Can you -- I have it here. Do you mind 05:50:14
2 giving me just a few minutes to familiarize myself
3 with it?

4 Q. Yeah.

5 And while you're familiarizing yourself, 05:50:41
6 Mr. Cross, you should also --

7 MR. LOESER: Is there a way to put up the
8 PDF as well?

9 We're going to post the attachment. You
10 can just go ahead and look at both of those things. 05:50:49
11 That would be useful.

12 THE DEPONENT: Great. Thank you.

13 I don't have the PDF in Veritext just
14 yet.

15 Q. (By Mr. Loeser) It's on its way. 05:51:31

16 A. Cool. Thank you.

17 I have it now. Thank you. I'm just
18 reviewing it now.

19 Cool. I've reviewed both of those
20 before. Thank you. 05:52:40

21 Q. Okay. So --

22 A. I appreciate you guys giving me the time
23 to read these things.

24 Q. Yes, of course.

25 Looking back at the email itself, KP 05:52:48

Page 603

HIGHLY CONFIDENTIAL

1 writes, "Hello, Marne and all. Please find 05:52:54
2 attached a deck summarizing our thinking around the
3 private API review that (1) outlines the problem,
4 (2) explains what we're doing about it broadly
5 including what partnerships will do specifically, 05:53:08
6 and (3) how we might accelerate the effort. In
7 short..."

8 Do you see that?

9 A. I see that.

10 Q. And then do you see the heading 05:53:20
11 "Problem"?

12 A. I do.

13 Q. Okay. And No. 1 on the problem. Why
14 don't you go ahead and read No. 1.

15 A. Sure. 05:53:35

16 "Partners maintained access to private
17 API even after featured relying on those APIs have
18 been deprecated (i.e. instant personalization or
19 search integrations have been deprecated in 2015
20 but Rotten Tomatoes, Yandex, Bing, etc. maintained 05:53:51
21 their access until recently -- this is probably the
22 main theme of the NYT story that is expected to
23 land today)."

24 Q. And can you explain what this is
25 identifying any more than what you just read? 05:54:10

Page 604

HIGHLY CONFIDENTIAL

1 A. I'll do my best. Again, this is an email 05:54:24
2 written by somebody else, so I give you my -- my
3 interpretation of that email from my understanding
4 and conversations with people in preparation, which
5 is that there were partners; i.e. apps, that were 05:54:35
6 on whitelists where the -- their usage of those
7 features, those private features, was no longer
8 active, but they were still on the whitelist, and
9 that potentially allowed them to continue using
10 those features even though they may not have been. 05:55:05

11 That's my understanding from this
12 reading.

13 Q. And did those features include access to
14 friend data?

15 A. I'm not sure what -- what KP's referring 05:55:16
16 to here specifically. He -- he calls out instant
17 personalization and search integrations. It's --
18 it's possible that he's casting a wider net, but --
19 I would be speculating.

20 Q. Okay. And what -- can you read Problem 05:55:33
21 No. 2 that's identified here.

22 A. In the email, again, it says "It's not
23 clear what legal terms govern the access to those
24 APIs (if any)."

25 Q. Okay. And can you what the problem was 05:55:50

HIGHLY CONFIDENTIAL

1 here? 05:55:52

2 MR. SCHWING: I will caution the witness
3 not to reveal anything that may be attorney-client
4 privilege.

5 But if you can answer without revealing 05:55:59
6 that, please do.

7 THE DEPONENT: Yeah, my -- again, it --
8 I -- I don't know what KP means specifically.
9 It's -- it's his email, and he's -- he's the source
10 of truth as to what he was referring to. 05:56:17

11 I can answer given -- given my -- my
12 understanding, which is that there were the
13 standard platform developer policies and -- and
14 typically Facebook would have contracts with some
15 developers to cover some -- some APIs, and my 05:56:39
16 understanding -- my understanding was -- my
17 understanding is that it was not known what -- what
18 contracts existed for all of these APIs.

19 But, again, I want to caveat what I've
20 just given there with I'm -- I'm not super close to 05:57:04
21 the -- to the terms here. So that's -- that's the
22 best answer I can give.

23 But -- it's the best answer I could give.

24 Q. (By Mr. Loeser) Okay. And Problem

25 No. 3, "Partners have access to private APIs that 05:57:21

Page 606

HIGHLY CONFIDENTIAL

1 may not be valuable to Facebook that we need to 05:57:24
2 review and deprecate or secure support for future
3 investments."

4 Did I read that correctly?

5 A. You read that correctly. 05:57:36

6 Q. What does it mean in this context for
7 private APIs that may not be valuable to Facebook?

8 MR. SCHWING: Object to the extent it's
9 outside of the scope of topics 6 and 7.

10 THE DEPONENT: Yes, it's hard for me 05:57:48
11 to -- to answer that question on behalf of the
12 Facebook. I can give you, again, my -- my
13 understanding and my interpretation, having been
14 involved to this and spoken to people involved.

15 There are at this point a number of -- of 05:58:03
16 private APIs or permissions that existed, and the
17 purpose for which those were introduced may -- and
18 the reasons for which those were introduced may --
19 may -- the developer ecosystem uses expectations
20 and so on would have changed and so the -- the 05:58:29
21 purpose for which they were originally built might
22 not make sense anymore.

23 Q. (By Mr. Loeser) Okay. And what does
24 "secure support for future investments" mean in
25 this context? 05:58:48

HIGHLY CONFIDENTIAL

1 MR. SCHWING: Calls for speculation. 05:58:54

2 THE DEPONENT: Yeah, I -- it's -- it's
3 hard for me to what -- what -- what he means by
4 this in this email, so I'd be speculating as to --
5 to what he means. 05:59:01

6 Q. (By Mr. Loeser) He writes "We need to
7 review and deprecate or secure support for future
8 investments."

9 Does that help you answer the question to
10 look at it in that context? 05:59:09

11 A. So, again, like I'm -- I'm not sure what
12 he means by "secure support for further
13 investment." So -- so I could speculate as to what
14 that might mean, but I don't think that's
15 appropriate to do here. 05:59:25

16 Q. Okay. If you look at the next header, it
17 says "Actions to be Taken." And -- and based on my
18 read of this, it appears that Facebook launched an
19 effort to review the entire universe of apps and
20 their access to private APIs. 05:59:44

21 Did that, in fact, happen?

22 A. Yes, it did.

23 Q. Okay. And if you look at No. 3, it's --
24 well No. 2 is "remove access for those APIs that
25 have been since been deprecated," right? 05:59:57

Page 608

HIGHLY CONFIDENTIAL

1 A. Sorry. Can you point out that again? I 06:00:01

2 just want to make sure. Bullet No. 2?

3 Q. The second action to be taken says

4 "remove access for those APIs that have since been

5 deprecated," right? 06:00:09

6 A. That's what I see on the email here,

7 yeah.

8 Q. And then the third action: "Together

9 with product, assess whether certain private APIs

10 need to be maintained, supported. This will fold 06:00:20

11 into the so-called project Frozen."

12 Did I read that correctly?

13 A. You did read that correctly.

14 Q. Do you know what project Frozen is?

15 A. I'm not entirely what -- what project 06:00:38

16 Frozen -- he's referring to with project Frozen

17 here. Again, I -- I can -- there's a -- there was

18 an API moratorium which he could be referring to.

19 But he's -- again, he's using the caveat "so-called

20 project Frozen," so he may be referring to a -- to 06:00:55

21 a different code name here.

22 Again, I -- I'd be speculating, and KP is

23 the source of truth.

24 Q. So No. 4, it looks like after assessing

25 certain private APIs, the idea was to "sign 06:01:09

Page 609

HIGHLY CONFIDENTIAL

1 contracts with partners to ensure they retain 06:01:12

2 access to those private APIs."

3 Did I read that correctly?

4 A. You read that correctly, yeah.

5 Q. And did that happen? 06:01:19

6 A. I -- I don't know whether or not that

7 happened. I'm -- I'm not familiar with the precise

8 things that were -- were done as part of this

9 project, so I can't comment as to whether or not

10 that -- that happened. 06:01:37

11 Q. And did the private APIs being accessed

12 include APIs that emitted friend data?

13 A. Yes. My understanding is that this

14 effort looked at all private APIs and capabilities

15 that existed at the time. 06:01:57

16 Q. And so in 2018, those private apps and

17 capabilities including those that emitted friend

18 data?

19 A. Well, at this point, the -- the friend

20 permissions had been fully removed from the code 06:02:21

21 base, and there's a number of -- this covers every

22 API and private API or whitelists or permission

23 that was gated behind a capability.

24 I can't say for certain what that full

25 set of things would have included. 06:02:38

Page 610

HIGHLY CONFIDENTIAL

1 Q. But the idea certainly was to review 06:02:42
2 everything, including any APIs that continued to
3 emit friend data, right?

4 A. My understanding is yes, the intent of
5 this was to -- was to do a -- perform a 06:02:52
6 comprehensive review of all -- of all private -- of
7 all capabilities and their associated APIs and
8 permissions.

9 Q. Okay. If we can go down to the
10 recommendation and timeline in KP's email. And you 06:03:05
11 see the first bullet there.

12 And it states: "Phase I (end of Jan):
13 Complete the review all the sensitive private API
14 (the ones that emit PII data) and come up with a
15 playbook for the P1 reviews." 06:03:26

16 Did I read that correctly?

17 A. You did, yeah.

18 Q. And so fair to say that Facebook believes
19 that sensitive private APIs are the ones that emit
20 PII data? 06:03:41

21 MR. SCHWING: Object to the form.
22 Outside the scope.

23 THE DEPONENT: So, again, this is an
24 email from KP, and KP is asserting that he believes
25 that ones that emit PII data he would consider 06:03:55

Page 611

HIGHLY CONFIDENTIAL

1 sensitive. 06:03:59

2 Q. (By Mr. Loeser) And was KP considered a
3 knowledgeable person about these topics at
4 Facebook?

5 MR. SCHWING: The question is vague. 06:04:08
6 Calls for speculation.

7 THE DEPONENT: Yeah. I mean, hard --
8 hard -- hard to answer that question. Yeah, I
9 don't know how KP was perceived by -- by various
10 people at the company. He was certainly 06:04:19
11 knowledgeable as a platform partnerships person.

12 Q. (By Mr. Loeser) And fair to say that
13 Facebook believed that he had an adequate
14 understanding of what a sensitive private API was?

15 MR. SCHWING: Outside of the scope. 06:04:34
16 Object to the form.

17 THE DEPONENT: Yeah, hard for me to
18 answer on behalf of Facebook and what -- what
19 Facebook as -- as an entity thinks.

20 I can give you my -- my view. But -- but 06:04:45
21 I don't feel I can answer that on behalf of the
22 company as such.

23 I think he was knowledgeable about --
24 about the Facebook developer platform and which
25 APIs existed and what -- what they were being used 06:05:00

Page 612

HIGHLY CONFIDENTIAL

1 by -- how they were being used by developers. 06:05:07

2 Q. (By Mr. Loeser) Who at Facebook can
3 answer the question in the way that -- that would
4 describe Facebook's corporate understanding of what
5 is a sensitive private API? 06:05:21

6 MR. SCHWING: Object to the scope. Calls
7 for speculation.

8 THE DEPONENT: I mean, it -- I think,
9 again, "sensitive" is -- is a subjective
10 definition. "Private API," I think we've covered. 06:05:36
11 "Sensitive" is subjective.

12 I would think that maybe the legal policy
13 teams would be well placed to opine on that.

14 But, again, "sensitive" is not -- is a
15 subjective term. 06:05:56

16 Q. (By Mr. Loeser) So who in the policy
17 team could opine on -- on what Facebook means by
18 "sensitive private API"?

19 MR. SCHWING: Outside the scope. Calls
20 for speculation. 06:06:09

21 THE DEPONENT: Yeah, I -- I don't know
22 who at the company would like names of -- of people
23 that -- that would be able to give you an
24 authoritative answer. Again, you're asking a very
25 broad question. 06:06:22

HIGHLY CONFIDENTIAL

1 Q. (By Mr. Loeser) And do APIs that emit 06:06:24
2 friend data emit PII data?

3 MR. SCHWING: Object -- sorry.

4 Objection. Vague. Outside the scope.

5 THE DEPONENT: Can you help me understand 06:06:40
6 what -- what you mean by PII data?

7 Q. (By Mr. Loeser) Well, what does it mean
8 here on this -- on this communication?

9 MR. SCHWING: Calls for speculation.
10 Outside the scope. 06:06:51

11 THE DEPONENT: Yeah, I -- yeah, I can't
12 give you an authoritative answer to that. I have
13 my own understanding, but KP is the -- is the
14 author of the email, and he's -- he's the one
15 making these statements. 06:07:07

16 Q. (By Mr. Loeser) Do you know what "PII"
17 stands for?

18 A. My understanding in this context is "PII"
19 stands for personally identifiable information.

20 Q. And does friend data provide personally 06:07:18
21 identifiable information?

22 MR. SCHWING: Objection. Vague. Calls
23 for a legal conclusion.

24 THE DEPONENT: Yeah, it's -- I'm not --
25 I'm not able to make a formal determination of what 06:07:30

Page 614

HIGHLY CONFIDENTIAL

1 PII includes or counts as PII. 06:07:33

2 Q. (By Mr. Loeser) So you're saying -- your
3 testimony under oath today is you cannot testify as
4 to whether friend data includes PII?

5 A. By giving you -- again, I'm trying to do 06:07:48
6 my best here and give you an accurate -- an
7 accurate and complete answer.

8 The definition of "PII" is -- is not
9 defined, and so it's hard to give -- me to give you
10 a complete -- complete answer. Right? 06:08:00

11 So I -- I just -- I'm not sure I can
12 answer that question in a way that's like -- fully
13 accurate. I could, you know, speculate and give
14 you my personal take, but you're asking me to
15 testify as to what Facebook considers PII, which is 06:08:14
16 a -- a thing I'm -- I don't believe I'm well placed
17 to give.

18 Q. Well, Mr. Cross, what do you believe PII
19 is?

20 A. I think there's a range of definitions 06:08:28
21 of -- of PII. One definition would be somebody's
22 name and maybe their profile picture. You could
23 argue that that is personally identifiable. There
24 are cases where it's not personally identifiable.
25 So hence -- hence the challenge giving a complete 06:08:50

Page 615

HIGHLY CONFIDENTIAL

1 answer there. 06:08:55

2 Q. Okay.

3 MR. LOESER: Why don't we go to the
4 PowerPoint itself. It's Exhibit 405.

5 (Exhibit 405 was marked for 06:09:10
6 identification by the court reporter and is
7 attached hereto.)

8 Q. (By Mr. Loeser) Again, Mr. Cross, you've
9 had a chance to review this PowerPoint previously,
10 right? 06:09:23

11 A. I have, yes.

12 Q. And did you also read it to prepare for
13 your testimony today?

14 A. It was -- yes, it was supplied as one of
15 the documents I -- I think you were potentially 06:09:32
16 going to show me, so I -- I reviewed it in
17 preparation for today, yes.

18 Q. And the title slide states "Reducing Risk
19 from Private APIs, Partnerships," right?

20 A. I see that, yeah. 06:09:45

21 Q. And what were the risks from private
22 APIs?

23 MR. SCHWING: Objection. Vague.

24 THE DEPONENT: Yeah, I think there's a --
25 hard for me to -- to -- there's a number of the 06:09:59

Page 616

HIGHLY CONFIDENTIAL

1 potential risks from -- from private APIs. I 06:10:03

2 couldn't enumerate them all.

3 Q. (By Mr. Loeser) Can you enumerate any of
4 them?

5 A. Yes. I can attempt to enumerate some 06:10:19
6 examples.

7 So there a number of -- as I said, a
8 number of private APIs. One of the risks for an
9 API like off.login is that it allowed developers to
10 supply -- to collect user names and passwords in 06:10:39
11 order to allow a user to log in to an experience on
12 a device.

13 And an app that had that capability,
14 there were a number of risks around making sure
15 that the appropriate disclosures are presented to 06:10:55
16 users and that the information that users provide
17 is -- is captured and used correctly.

18 So that would be one -- one risk from one
19 type of -- of private API.

20 Q. Are there risks of private APIs that emit 06:11:16
21 friend data?

22 A. Again, there's many private APIs, and --
23 and APIs that emit information about users or their
24 friends. Facebook would want to make sure that
25 those APIs and that information is being used 06:11:39

Page 617

HIGHLY CONFIDENTIAL

1 appropriately and in accordance with our -- our 06:11:44
2 terms.

3 Q. And are there specific risks that relate
4 to friend data that Facebook was concerned about?

5 MR. SCHWING: Objection. Vague. 06:11:56

6 THE DEPONENT: So we talked about this in
7 a -- in a previous testimony around some of the
8 reasons for the changes to the public API surface
9 area. We'd had concerns from users that they were
10 not always aware how their information was being 06:12:17
11 used by -- by applications, and so in the case of
12 private APIs, we would want to make sure that
13 information was being used appropriately.

14 Q. (By Mr. Loeser) Can we go to --

15 MR. SCHWING: Mr. Loeser, just -- just 06:12:36
16 quickly. We've been going for about an hour. I'm
17 not saying we need to take a break right now, but
18 at a convenient time in the next few minutes, if we
19 could take a break, that would be great.

20 MR. LOESER: Sure. I'd like to get 06:12:48
21 through this deck, and I'll try and do it quickly,
22 but if it's taking too long, we'll stop before we
23 get to the end.

24 THE DEPONENT: Thank you.

25 MR. SCHWING: Thank you. 06:12:56

Page 618

HIGHLY CONFIDENTIAL

1 Q. (By Mr. Loeser) If you go to the next 06:12:57
2 slide.

3 Do you see that "What is the problem?"

4 A. I see that, yeah.

5 Q. And am I reading this correctly: That in 06:13:01
6 this analysis Facebook identified 2,300 private API
7 application pairs that included PII data?

8 A. Well, again, what's on the slide here,
9 I'm -- the author was KP. I -- I don't know how
10 these data were compiled or collected. 06:13:28

11 But from rating the slide, somebody at
12 Facebook, KP, seems to have identified 2,300 API --
13 API application pairs that met some definition
14 of -- of PII, which I'm not aware of the details
15 of. 06:13:50

16 Q. And what is "a private API application
17 pair"?

18 A. So I actually would be speculating if I
19 knew precisely. I think I know what -- what this
20 refers to. I would have used a different term. 06:14:05

21 So private API is a -- is an ambiguous
22 term, and so I think he may have used a -- he may
23 be referring to a different technical term. So I
24 would actually be speculating if I -- if I
25 confirmed that -- understanding -- if I confirmed. 06:14:27

Page 619

HIGHLY CONFIDENTIAL

1 My understanding, speaking -- you know, 06:14:30
2 trying to do my best here and trying to give you
3 the best answer I can -- is that -- I understand
4 him to be referring to capability app pairs. So
5 that -- that -- that's my understanding of what 06:14:44
6 he'd be referring to.

7 But private APIs is a little bit
8 ambiguous in this context.

9 Q. Okay. And then the key issues that he
10 identified, those appear to be the same, more or 06:15:00
11 less, as the problems he identified in the cover
12 email; is that right?

13 A. This maps pretty closely to what he
14 identified in the email, yes.

15 Q. Okay. So we go to thing next slide. 06:15:15

16 "What we're doing about it, Private API
17 Review."

18 Do you see the product heading?

19 A. Yup, I see it.

20 Q. He writes "Following our API moratorium, 06:15:26
21 Product is introducing new steps to grant new
22 access to new external-facing, private APIs gated
23 by capabilities. While this addresses issues
24 moving forward, we still have an uncertain past
25 that needs to be cleaned." 06:15:41

HIGHLY CONFIDENTIAL

1 Do you see that? 06:15:43

2 A. I do see that, yeah.

3 Q. And what was the API moratorium?

4 A. So the API moratorium was an announcement
5 in -- I actually have the -- the rough dates 06:15:54

6 here -- on the November the 1st, 2018, that
7 prevented anyone at Meta shipping any changes to
8 any API.

9 Q. And why was the API moratorium put in
10 place? 06:16:15

11 A. My understanding is that the API
12 moratorium was put in place to give the company
13 time to audit and understand the existing APIs and
14 how they were being used as well as to develop new
15 processes and practices for controlling changes to 06:16:38
16 APIs going forward.

17 Q. And -- and what events prompted that
18 audit?

19 MR. SCHWING: Object to the scope.
20 Outside the scope. 06:16:52

21 THE DEPONENT: I'm -- I'm not sure,
22 again, exactly what prompted that. So probably a
23 number of factors that went into the -- the
24 decision-making that I, you know, have not fully --
25 I'm not fully aware of. So I can't answer fully as 06:17:09

Page 621

HIGHLY CONFIDENTIAL

1 to what that was -- what drove that 06:17:16
2 decision-making.

3 But, again, what I can share from my
4 personal perspective is this is after the
5 Cambridge Analytica story broke, and -- and I 06:17:28
6 would -- my understanding is that was one of the
7 drivers for improving development practices around
8 APIs.

9 Q. (By Mr. Loeser) And if you look at the
10 next heading, which says "Partnerships," this 06:17:44
11 states "Partnerships will comprehensively clean up
12 historical private API access, integrate into
13 existing company efforts to review future API
14 access, and establish maintenance for private API
15 risk that evolve in the future." 06:18:00

16 Did I read that correctly?

17 A. You did read that correctly.

18 Q. Did that happen?

19 A. My understanding is that broadly, yes,
20 that did happen. 06:18:10

21 Q. We can go to the next slide. This title
22 is "How Partnerships plans to read the cleanup."

23 And do you know specifically what is
24 being cleaned up?

25 MR. SCHWING: It's outside the scope. 06:18:29

HIGHLY CONFIDENTIAL

1 THE DEPONENT: Let me -- let me just 06:18:34
2 review the slide and see if I can give you an
3 answer.

4 So having -- having read this, what's on
5 the slide is the best answer I could give as what's 06:18:57
6 being cleaned up here. I can provide commentary
7 and some explanation if it would be useful, but I
8 think the slide is actually a pretty good
9 explanation of what was happening.

10 Q. (By Mr. Loeser) And generally speaking, 06:19:13
11 was the idea to clean up the private APIs and to
12 identify those that should be deprecated and those
13 that should be continued because of the value they
14 provide to Facebook?

15 MR. SCHWING: Objection. Vague. Outside 06:19:29
16 the scope.

17 THE DEPONENT: My understanding is that
18 this is primarily identifying -- reviewing private
19 API pairs, which is a given capability and a given
20 application that has that capability in an audit of 06:19:46
21 why that app has that capability and whether or not
22 it should continue to have that capability.

23 Q. (By Mr. Loeser) And why wasn't that done
24 in 2015?

25 MR. SCHWING: Objection. Outside the 06:20:02

HIGHLY CONFIDENTIAL

1 scope. Vague. 06:20:03

2 THE DEPONENT: Yeah, I -- hard for me to
3 comment on -- on -- on why this wasn't -- wasn't --
4 why this -- this process continued later.

5 My recollection from the time is there 06:20:20

6 was an effort in 2013 to reduce the number of
7 capability app pairs which existed, and so I think
8 this is -- it's not right to characterize this as
9 "not done" and "done." There were -- have been a
10 number of efforts over a number of years to attempt 06:20:38
11 to manage the -- the set of private APIs.

12 Q. (By Mr. Loeser) Okay. If you look at
13 the "Investigate and Decide" stop on this -- on the
14 plans on this slide.

15 The first bullet says "Investigate API 06:20:56

16 access on questionable private API app pairs and
17 contractual obligations."

18 Did I read that right?

19 A. You did read that right.

20 Q. And what are questionable private API app 06:21:07
21 pairs?

22 MR. SCHWING: Outside the scope of topics
23 6 and 7. It's vague.

24 THE DEPONENT: Again, it's hard -- I
25 don't feel I can give a kind of answer on behalf of 06:21:18

Page 624

HIGHLY CONFIDENTIAL

1 the company there. KP is the author of the deck 06:21:21
2 and the source of truth as to what he means here.

3 Again, in the service of being helpful, I
4 can -- I can give you the best answer I can give,
5 which is that, for example, an app may have a 06:21:34
6 capability that it is not using and therefore there
7 is little value in it having the capability, and
8 therefore the capability should be removed from the
9 application.

10 So that would be an example of something 06:21:52
11 that that I would personally would have determined
12 to be a questionable private app pair. Put it
13 another way: If it's not being used, why do they
14 still have access to it.

15 Q. (By Mr. Loeser) The next bullet is "Set 06:22:07
16 criteria on decision points (e.g. hi/low value of
17 API usage."

18 What does "hi/low value of API usage"
19 mean?

20 MR. SCHWING: Outside the scope. Vague. 06:22:20

21 THE DEPONENT: So, again, I can't -- I
22 don't feel I can give you a company answer to that
23 question. KP's the source of truth. I can give
24 you my -- my interpretation, my understanding, as
25 best I can with -- given my experience here. 06:22:33

Page 625

HIGHLY CONFIDENTIAL

1 So hi/low value of API and usage, in my 06:22:38
2 estimation, would be -- would -- would revert --
3 would refer to the -- the value of the API in terms
4 of the value it provides to -- to users and to the
5 developer, and usage would refer to how often that 06:22:57
6 API is being used or how -- how widespread that use
7 is by applications and uses.

8 Q. (By Mr. Loeser) And you gave one example
9 of an app API pair that is questionable. Can you
10 think of other examples? 06:23:28

11 A. Give me a second to make sure I can think
12 of some.

13 So yeah. Another example might be where
14 an application has the ability to call a certain
15 API or access certain information where the -- the 06:24:03
16 way in which that information is being used to
17 enhance the user experience is unclear or not
18 known.

19 Q. Would a misuse of user data by the app
20 also be considered the result of a questionable 06:24:26
21 private API app pair?

22 MR. SCHWING: The question is vague.
23 Outside the scope.

24 THE DEPONENT: Again, hard to give a
25 detail. I can't give a representative company 06:24:40

HIGHLY CONFIDENTIAL

1 answer there. 06:24:42

2 My -- my understanding is that, yes,
3 questionable means would -- would mean, to me, this
4 is worth investigating as to why this app has this
5 capability to make sure we are confident that the 06:24:56
6 app should indeed have access to this capability.

7 Q. (By Mr. Loeser) Okay. You can go to the
8 slide, and then we're just about finished with this
9 document. Appreciate your patience.

10 A. Thank you. 06:25:10

11 Q. This is titled "What we need to move
12 faster." And you'll see that this slide -- correct
13 me if I'm wrong -- describes different types of
14 review that could be done of the API app pairs; is
15 that right? 06:25:26

16 A. Give me a second just to -- just to read
17 the slide again.

18 MR. SCHWING: It's outside the scope for
19 this witness.

20 THE DEPONENT: This is hard for me to 06:26:11
21 interpret. I wasn't involved at the time in a
22 personal capacity, I don't think it's appropriate
23 for me to try and speculate on what -- what's meant
24 here.

25 Q. (By Mr. Loeser) Sure. Well, let me ask 06:26:22

Page 627

HIGHLY CONFIDENTIAL

1 you a more specific question. 06:26:23

2 A. Thank you.

3 Q. You see on the far right there are in

4 bold letters the first line for each of these, one,

5 three months, six months, is a reference to "no 06:26:30

6 contract review"?

7 Do you see that?

8 A. I see that, yup.

9 Q. Okay. And then there's a description of

10 what would be done to investigate and decide with 06:26:42

11 regard that that was the approach.

12 Do you see that?

13 A. I think so. Sorry. Yes. I mean, I

14 see -- I see the slide.

15 Can you point me to the cell row you're 06:26:59

16 referring to.

17 Q. Yeah. If you look on the far left down

18 below one month, and there's columns of information

19 and titles for those columns on the far left, and

20 the first title is "No Contract Review." The 06:27:14

21 second title is "Strategic Partners Only." And --

22 A. Yes.

23 Q. -- the third is "All Partners Review."

24 Do you see that?

25 A. Yes, I see that, yes. 06:27:21

Page 628

HIGHLY CONFIDENTIAL

1 Q. And so -- so for this -- those are the 06:27:23
2 three options that are described for what Facebook
3 could do to move faster; is that a fair read?

4 MR. SCHWING: Objection. Calls for
5 speculation. It's outside the scope. 06:27:40

6 THE DEPONENT: Yeah, I -- it's hard for
7 me to answer -- give you authoritative answer here.
8 Like, I -- I, you know, we saw this document in
9 preparation before. I was not involved at the
10 time. So I'd be speculating as to exactly what -- 06:27:56
11 what was meant here.

12 Q. (By Mr. Loeser) Well, this PowerPoint at
13 its outset identified 2,300 what KP refers to
14 private API application pairs, right?

15 A. He refers to 2,300 -- 06:28:16

16 Q. Okay.

17 A. -- private API, yeah.

18 Q. And it refers to a need to audit those
19 pairs to identify questionable API access, right?

20 A. He does -- does refer to that. 06:28:31

21 MR. SCHWING: Sorry. Sorry. It's vague,
22 outside the scope.

23 You can answer it, Mr. Cross.

24 Just give me one minute -- or one second
25 to state my objection. 06:28:40

HIGHLY CONFIDENTIAL

1 Thank you. 06:28:41

2 Mr. Loeser, I'm sorry. It may have
3 become a bit garbled there. Can you just reask
4 that?

5 MR. LOESER: Sure. We can just ask. 06:28:49

6 Q. (By Mr. Loeser) And it refers to the
7 need to audit those pairs to identify questionable
8 API access, right?

9 MR. SCHWING: Same objection.

10 Go ahead. 06:29:01

11 THE DEPONENT: It's what it says on the
12 slide, yes.

13 Q. (By Mr. Loeser) Okay. And then the last
14 slide in the deck describes potential audits that
15 could occur, and one would involve no contract 06:29:12
16 review; is that right?

17 MR. SCHWING: Calls for speculation.
18 Outside the scope.

19 THE DEPONENT: Yeah, it's actually pretty
20 hard for me to understand what -- what this 06:29:27
21 slide -- what this slide means and what he's
22 referring to here. This could be interpreted in a
23 few different ways. It's not -- it's not -- it's
24 not clear.

25 MR. LOESER: Okay. Well, why don't you 06:29:43

Page 630

HIGHLY CONFIDENTIAL

1 read the notes that are on that slide. Just take a 06:29:44
2 second. We can -- I just have two more questions,
3 and I want to make sure that you understand the
4 context of this slide.

5 THE DEPONENT: Okay. I've read the -- 06:30:30
6 the notes there.

7 Q. (By Mr. Loeser) I want to zero in on
8 the -- the second type of review that's identified
9 here, which is Strategic Partners Only, right?

10 A. Okay. 06:30:54

11 Q. And Strategic Partners Only is a subset
12 of all partners, right?

13 A. I'm -- I'm not sure what KP is referring
14 to with strategic partners only, whether or not
15 this is a -- I'm not even sure what -- what he's 06:31:08
16 referring to here and what -- what he's using as --
17 as that definition for "strategic partners."

18 Q. Okay. Does it appear to be a smaller
19 group of partners than the all partners review,
20 just looking at the numbers reflected there? Isn't 06:31:19
21 that a fair interpretation of that?

22 MR. SCHWING: These questions call for
23 speculation and outside the scope.

24 THE DEPONENT: Yeah, I'd be speculating.
25 Like it's -- it's possible that that's the case. 06:31:33

HIGHLY CONFIDENTIAL

1 It could also mean that different partners require 06:31:36
2 different levels of review and time. I -- I don't
3 know what he's referring to here specifically.

4 Q. (By Mr. Loeser) Who at Facebook could
5 tell me whether there's a subset of partners called 06:31:46
6 "strategic partners" at Facebook?

7 MR. SCHWING: Outside the scope. Calls
8 for speculation.

9 If you know, you can go ahead and answer.

10 THE DEPONENT: So the platform 06:32:05
11 partnerships team would probably be able to provide
12 some additional context there. As I -- as I have
13 said before, I don't think there's a standard
14 definition for "strategic partner," and I think if
15 there is, those definitions will change depending 06:32:18
16 on -- on the division of Facebook that you're
17 talking to and -- and different definitions over
18 time.

19 So I'm not aware of a standard definition
20 of what "strategic partners" means. 06:32:32

21 Q. (By Mr. Loeser) Last question. And if
22 you go back to the second page of the deck where we
23 referred to the number of private API application
24 pairs.

25 Are all of those pairs reflected on a 06:32:42

HIGHLY CONFIDENTIAL

1 whitelist? 06:32:49

2 A. I'm sorry. Can you help me understand
3 the question? I think I know what you're asking,
4 but it's a little imprecise.

5 Are they reflected on a whitelist? 06:33:05

6 Q. Yeah. Are these all whitelisted
7 partners, basically? Is that how they -- that's
8 how you're able to identify that these private API
9 application pairs are what you would refer to as
10 capability pairs, are those reflected on -- on 06:33:17
11 whitelists? These are whitelisted partners?

12 A. So my understanding -- so first of all,
13 I'm not entirely sure what KP is referring to. As
14 I've -- as I've mentioned earlier, his definition
15 of "private API" is a little ambiguous to me. So 06:33:35
16 I -- I don't think I can give you a fully
17 authoritative answer.

18 But, again, in personal capacity, my
19 understanding is yes, he's referring to -- I think
20 he's referring to capabilities as -- and 06:33:50
21 specifically capability app pairs, and my
22 understanding of that is the two have access to a
23 capability. An app is whitelisted for it or is on
24 a whitelist.

25 MR. LOESER: Thank you. 06:34:07

HIGHLY CONFIDENTIAL

1 Let's go off the record. 06:34:08

2 Mr. Schwing, I asked that last question

3 because you've made a lot of scope objections. I

4 just want to make it clear to you that I'm asking

5 these questions because this is a -- relates to 06:34:21

6 whitelisting, and so I want to make sure the record

7 was clear on that. I hope that satisfies that,

8 sir.

9 THE VIDEOGRAPHER: Okay. It's 6:52 p.m.

10 (Recess taken.) 06:34:33

11 THE VIDEOGRAPHER: We're back on the

12 record. It's 7:57 p.m.

13 (Exhibit 406 was marked for

14 identification by the court reporter and is

15 attached hereto.) 07:39:23

16 MR. LOESER: Let me introduce another

17 exhibit. Momentarily, Mr. Cross, you'll see an

18 email from Rob Boyle to Eddie O'Neil, Shirley Sun,

19 and Drew Lackman dated March 27th, 2019. Subject:

20 "Escalation deck Rev" with an attachment of a slide 07:39:41

21 deck.

22 Q. (By Mr. Loeser) And, Mr. Cross, who is

23 Rob Boyle?

24 MR. SCHWING: I'm sorry, Derek. Just to

25 be helpful. This is Exhibit 406 for the record, 07:40:12

Page 634

HIGHLY CONFIDENTIAL

1 right? 07:40:12

2 MR. LOESER: Yes. Yes, thank you for
3 that. Exhibit 406.

4 I have not been reading the Bates numbers
5 because -- frankly, it's just time, but the Bates 07:40:18
6 numbers associated with the exhibit.

7 THE DEPONENT: I'm -- I'm not sure who
8 Rob Boyle is, I'm afraid.

9 Q. (By Mr. Loeser) Okay. Do you know who
10 Shirley Sun is? 07:40:39

11 A. No, I'm not sure who Shirley Sun is
12 either.

13 Q. How about Drew Lackman?

14 A. I'm not sure who Drew -- Drew Lackman is
15 either. 07:40:52

16 Q. And what about WS3.h? Do you know what
17 that is?

18 A. I don't know what W3.h -- WS3.h is
19 either, I'm afraid, no.

20 Q. Do you know what the escalation referred 07:41:07
21 to concerns?

22 A. I -- I don't, I'm afraid.

23 (Exhibit 407 was marked for
24 identification by the court reporter and is
25 attached hereto.) 07:41:18

Page 635

HIGHLY CONFIDENTIAL

1 Q. (By Mr. Loeser) Why don't we go to the 07:41:18
2 deck itself, which is attached.

3 And while we're loading up the next
4 exhibit, 407, Mr. Cross, I take it you reviewed
5 that email and the attached deck in advance of your 07:41:33
6 testimony today?

7 A. I did -- I did review these documents.
8 You sent over a lot of documents. I did my best,
9 but there was quite a lot to get through.

10 Q. Oh, I understand. 07:41:48

11 Did you make any effort to contact
12 Mr. Boyle, Ms. Sun, or Mr. Lackman?

13 A. I did not make efforts to contact them.

14 Q. How about Eddie O'Neil?

15 A. I did not make efforts to contact 07:42:03
16 Eddie O'Neil after receiving these documents.

17 Q. And I'll try and -- I don't have a lot of
18 questions about this deck, but I have a few.

19 So if you look at the first slide, it
20 says "WS3.j escalation process proposal 07:42:15
21 March 2019."

22 Did I read that correctly?

23 A. You read that correctly. Do you mind if
24 you -- do you mind if I just take a --

25 Q. Yeah, yeah. 07:42:26

HIGHLY CONFIDENTIAL

1 A. -- couple minutes to scan through the 07:42:27
2 deck?

3 MR. LOESER: Let me tell you -- please
4 review the deck, but let me tell you that
5 particular pages that I'm -- I'm not going to ask 07:42:39
6 you a lot about it, but I'm going to ask you about
7 slide 5, slide 6, slide 14, 17, and 18.

8 THE DEPONENT: Okay. I've had a quick
9 scan through.

10 Q. (By Mr. Loeser) Okay. Thank you. 07:43:55
11 Let's look at slide 5, which I think will
12 help you understand the context of this deck.

13 And I'll read the header on the slide.
14 "All APIs and platform products are being audited
15 and assessed. All will either be deprecated or 07:44:12
16 retained."

17 Do you see that?

18 A. I do.

19 Q. And do you know if that occurred?

20 A. My understanding is yes, that did occur. 07:44:23

21 Q. Okay. And the bullet says "all retained
22 APIs and platform products will then will be
23 retroactively sent through the API cross-function
24 process to ensure they comply with our latest
25 policies and are properly documented." 07:44:37

Page 637

HIGHLY CONFIDENTIAL

1 Do you know if that occurred? 07:44:40

2 A. My understanding is yes, that -- that did
3 occur.

4 Q. And what is the API cross-function
5 process? 07:44:47

6 A. I'll -- I'll do my best to describe it.

7 The API XFN is a companywide process by
8 which any APIs that emit data to third parties need
9 to be reviewed by a number of people from a number
10 of different teams before they are able to be 07:45:12
11 launched or made available to external parties.

12 Q. And why was that process implemented?

13 MR. SCHWING: Outside the scope.

14 THE DEPONENT: I -- I'm not sure the full
15 details of -- of why that process was implemented. 07:45:31
16 I can talk from my -- my personal understanding,
17 but I'm not aware of the full set of reasons why --
18 why that was implemented.

19 Q. (By Mr. Loeser) What are the reasons
20 that Facebook had for implementing that process? 07:45:48
21 Any of the reasons?

22 MR. SCHWING: Same objection.

23 Go ahead.

24 THE DEPONENT: So, again, so some of the
25 reasons I understand that -- that this was 07:45:59

Page 638

HIGHLY CONFIDENTIAL

1 introduced was to ensure that appropriate gating 07:46:01
2 mechanisms were being used, that the implementation
3 of the APIs was using Facebook's modern coding
4 standards, and that there were policies and
5 procedures documented about the purpose of the API 07:46:24
6 and who it was made available to.

7 Q. (By Mr. Loeser) And was there a
8 particular event that prompted Facebook to
9 undertake these efforts?

10 MR. SCHWING: Outside the scope. 07:46:42

11 THE DEPONENT: Sorry, Austin. Say again.

12 MR. SCHWING: I said outside of the
13 scope.

14 But -- if you know in your personal
15 capacity, go ahead. 07:46:50

16 THE WITNESS: Yeah, I'm not sure I can
17 give -- a companywide answer there. My
18 understanding is that this happened after the
19 Cambridge Analytica situation broke and that was
20 one of the driving reasons. 07:47:03

21 Q. (By Mr. Loeser) And if you go to slide
22 9. And the header says "Each API is being assessed
23 based on risk and value."

24 Do you see that?

25 A. I do see that. 07:47:20

HIGHLY CONFIDENTIAL

1 Q. And then can you read the first bullet. 07:47:22

2 A. "The federated assessment evaluates all
3 APIs and platform products based on the risk they
4 carry versus the value they create."

5 Q. And did that happen? 07:47:34

6 A. My understanding is yes. An exercise was
7 done to determine which APIs would be retained or
8 deprecated.

9 Q. Okay. Can you read the next bullet.

10 A. The second bullet is "Everything found to 07:47:50
11 be high risk but high value is being flagged for
12 escalation."

13 Q. And what does Facebook mean by "high risk
14 but high value"?

15 MR. SCHWING: Object to the extent it's 07:48:02
16 outside the scope of topics 6 and 7.

17 THE DEPONENT: I'm -- I'm not confident
18 in -- in -- I don't think I can answer on behalf of
19 the company there. I wasn't involved in this -- in
20 this process, so -- and I haven't seen the -- the 07:48:13
21 documentation or the -- the -- what was used to --
22 to make that determination. So I'm not sure I can
23 answer that, I'm afraid.

24 Q. (By Mr. Loeser) Were there APIs and
25 platform products that emitted friend data that 07:48:30

HIGHLY CONFIDENTIAL

1 were considered high risk and high value? 07:48:34

2 A. As I said, I'm not entirely -- I'm not
3 confident in which APIs specifically were
4 categorized in each -- in each of these buckets.

5 So I couldn't give you an answer, I'm afraid. 07:48:48

6 Q. So who would at Facebook would know if
7 there are APIs that emit friend data that are
8 considered high risk and high value?

9 MR. SCHWING: Object to form.

10 THE DEPONENT: Sorry. The -- the 07:49:02
11 question there -- the question you asked you had a
12 tense in it that was present, whereas we're
13 reviewing a deck here from the past. So sorry.

14 Is your question about today or about
15 the -- the process being described in this 07:49:16
16 document?

17 Q. (By Mr. Loeser) Well, let's start with
18 the process described in this document.

19 A. I would need to understand who was
20 involved in creating this -- this process and then 07:49:33
21 speak to them as to like -- how this determination
22 was made.

23 Q. And how would you find out who was
24 involved in creating this process?

25 A. I would attempt to ping the -- the -- the 07:49:50

Page 641

HIGHLY CONFIDENTIAL

1 people who -- for whom -- who created this deck and 07:49:58
2 then go from there.

3 Q. We can go to slide 17.
4 Let's go back to the slide right before
5 that, slide 16. 407. 07:50:25

6 It says "Step 1: Roll up APIs into
7 products."
8 Do you know what that means?

9 A. I -- I can -- again, I can give you -- a
10 personal answer based on my understanding is that 07:50:40
11 there was an attempt to identify APIs and which
12 product organization at the company was responsible
13 for their existence and maintenance.

14 Q. Now we can go to the next slide.
15 "Step 2: Directors make a final decision 07:50:59
16 to retain or escalate and summarize the
17 justification."

18 That's the header on the slide. Did I
19 read that correctly?

20 A. You read that correctly, yeah. 07:51:09

21 Q. And did the directors make the final
22 decision to retain or escalate and summarize the
23 justification for Facebook's APIs?

24 MR. SCHWING: Outside the scope.

25 THE DEPONENT: I don't know -- I can't 07:51:29

Page 642

HIGHLY CONFIDENTIAL

1 answer as to what happened as part of this process. 07:51:31

2 I don't have personal experience. So -- so I'm not
3 sure I'm able to answer that question, I'm afraid.

4 Q. (By Mr. Loeser) You understand that --
5 that Facebook did, in fact, audit all of its APIs 07:51:46
6 on product platforms and escalated for further
7 review those that were considered for high value
8 for Facebook and high risk?

9 A. I'm aware that -- my understanding is
10 that Facebook did an audit of all of its APIs, but 07:52:00
11 I'm -- I'm not sure exactly what process was
12 followed to determine whether or not each should be
13 retained or deprecated.

14 Q. And if we flip to slide 14. I'll read
15 the header: "Estimates for volumes within each 07:52:24
16 bucket."

17 Do you see that?

18 A. I see that, yeah.

19 Q. And the bullet states "With assessment
20 90 percent done, we have fairly confident estimates 07:52:32
21 for the volume of products that will land in each
22 bucket."

23 Do you see that?

24 A. I see that, yup.

25 Q. And do you see that according to this 07:52:40

Page 643

HIGHLY CONFIDENTIAL

1 graphic here, Facebook made the determination to 07:52:42
2 escalate 540 -- 584 APIs and 21 platform products
3 that it considered high value to Facebook and high
4 risk; is that right?

5 MR. SCHWING: Object to form. Outside 07:52:59
6 the scope.

7 THE DEPONENT: Sorry. I think this --
8 this slide suggests an estimate of things which
9 might be escalated, but I'm not sure that is
10 reflective of ultimately what was done or the 07:53:13
11 proportions that were escalated, retained, or
12 deprecated.

13 Q. (By Mr. Loeser) And how would you find
14 the answer to what was actually done?

15 A. I would try and determine who was 07:53:26
16 involved in this effort and -- and ask them some
17 more detailed questions.

18 Q. And you would do that by pinging the
19 author of this deck to start?

20 MR. SCHWING: Outside the scope. 07:53:41

21 THE DEPONENT: So my starting -- my
22 starting point in trying to determine that would be
23 to -- to -- to find the author of this deck and
24 attempt to ask them questions about what was done.

25 Q. (By Mr. Loeser) Okay. Let's go back to 07:53:55

HIGHLY CONFIDENTIAL

1 slide 17. 07:53:57

2 Sorry.

3 And this is the slide that has the header

4 "Directors make the final decision to retain or

5 escalate and summarize the justification," correct? 07:54:12

6 A. I see that, yeah.

7 Q. And do you see the bullets on the right

8 side?

9 A. I do.

10 Q. The first bullet is "Each product will be 07:54:20

11 rolled up its closest director," right?

12 A. Yup, I see that.

13 Q. And the next bullet says "We will ask

14 them to make a final decision on which products

15 they want to justify retaining and to complete a 07:54:33

16 one-slide template for each explaining why its

17 value is worth the risk it creates."

18 Did I read that correctly?

19 A. You read that correctly.

20 Q. Okay. And then the next bullet states 07:54:48

21 "Each director will have their respective PG lead

22 sign off on their decisions and justification."

23 Did I read that correctly?

24 A. You read that correctly.

25 Q. And did that -- did that occur? 07:54:59

Page 645

HIGHLY CONFIDENTIAL

1 MR. SCHWING: Outside the scope. Vague. 07:55:07

2 THE DEPONENT: I'm not aware of the -- of
3 the details of what process was followed and what
4 was ultimately done, so I'm afraid I -- I can't
5 answer that question. 07:55:16

6 Q. (By Mr. Loeser) Okay. Let's go to the
7 next slide.

8 And, Mr. Cross, the slide we just looked
9 at referred to a one-slide template. And this is
10 the next page. At the top it says "Example product 07:55:25
11 template."

12 Do you see that?

13 A. I do see that.

14 Q. And this was -- this was the template
15 that was designed for -- for the directors to make 07:55:32
16 a final decision on which products they want to
17 justify retaining and for explaining why its value
18 is worth the risk it creates; is that right?

19 MR. SCHWING: Outside the scope.

20 Object -- object to form. 07:55:52

21 THE DEPONENT: So, yeah, I -- I didn't
22 write this deck, and I haven't spoken to the
23 authors of this deck, so I can't confirm that
24 that's their intention.

25 But it -- it seems to me to be a 07:56:05

Page 646

HIGHLY CONFIDENTIAL

1 reasonable interpretation that this is the 07:56:08
2 one-slide template -- although the -- it's -- the
3 slide -- the slide prior links to one-slide
4 template. It's not clear that that links to the
5 next slide or links to something else. 07:56:19

6 Q. (By Mr. Loeser) Fair to say, though, if
7 the prior slide refers to a one-slide template and
8 this is, in fact, a one-slide template that this is
9 likely what the prior slide was referring to?

10 MR. SCHWING: Calls for speculation. 07:56:35
11 Outside the scope.

12 THE DEPONENT: Yeah, I can't confirm
13 that, but it's not an unreasonable interpretation.

14 Q. (By Mr. Loeser) Did Facebook use this
15 template? 07:56:44

16 A. I -- I do not know if Facebook used this
17 template, and -- and anything else would be --
18 would be speculating, which is inappropriate, I
19 think.

20 Q. And looking at the template, it provides 07:57:01
21 a place for the director to fill in certain details
22 about the APIs and products that that director was
23 responsible for; is that right?

24 MR. SCHWING: Same objections.

25 THE DEPONENT: What I see on the slide is 07:57:20

HIGHLY CONFIDENTIAL

1 a range of -- of things. 07:57:21

2 Q. (By Mr. Loeser) Okay. And these things
3 are details that, according to the prior slide,
4 were intended to be used by the director to justify
5 the decision to retain the -- the API, correct? 07:57:33

6 MR. SCHWING: Same objections.

7 THE DEPONENT: So I -- I'm, as I
8 testified previously, not able to confirm that this
9 template was -- was indeed used or for what
10 purpose. 07:57:59

11 So it's -- it's hard for me to answer
12 that question.

13 Q. (By Mr. Loeser) Okay. Well, let's just
14 look at the template and see what information,
15 according to this slide deck, the director was 07:58:06
16 going to provide in order to justify the decision
17 to retain the API the director was responsible for.

18 Okay? Is that fair? Can we look at this
19 slide and walk through it?

20 A. I'm happy to review the slide. 07:58:24

21 MR. SCHWING: Calls --

22 THE DEPONENT: Sorry, Austin.

23 MR. SCHWING: Calls for speculation.

24 It's outside the scope.

25 Q. (By Mr. Loeser) So the first, if you 07:58:32

Page 648

HIGHLY CONFIDENTIAL

1 look at the right -- the right column, the first 07:58:33
2 box there is "sizing"; is that right?
3 A. That's what's on the slide, yeah.
4 Q. And the information that falls into that
5 category, there's three things. 07:58:44
6 The first is number of users, right?
7 A. Again, that's what I see on the slide.
8 Q. And the second is number of businesses?
9 A. That's what I see on the slide.
10 Q. And the third is number of apps? 07:58:56
11 A. That's what I see on the slide.
12 Q. And so those are three details that the
13 director would provide to help justify the decision
14 whether to maintain this -- this API -- right? --
15 according to this structure? 07:59:10
16 MR. SCHWING: Calls for speculation.
17 It's outside the scope.
18 THE DEPONENT: I'm not sure who is
19 intended to -- to fill in this -- this slide or --
20 or how this information would have been used. 07:59:27
21 Q. (By Mr. Loeser) Okay. Well, let's go
22 back to slide 17 for a second.
23 And you see the second bullet, it says --
24 and it's referring to directors: "We will ask them
25 to make a final decision on which products they 07:59:40

Page 649

HIGHLY CONFIDENTIAL

1 want to justify retaining and to complete a 07:59:42
2 one-slide template for each explaining why its
3 value is worth the risk it creates."

4 So based upon this deck, does it appear
5 that the person who was intended by the author of 07:59:52
6 this deck that would complete the template was the
7 director, and the purpose of filling out the
8 template was to justify the decision to explain why
9 the value of the API is worth the risk it creates?

10 Isn't that -- isn't that right, 08:00:11
11 Mr. Cross?

12 MR. SCHWING: Same objections.

13 THE DEPONENT: I'm not sure it's -- I
14 don't think you can summarize the directors who
15 were -- expected to fill out this template. 08:00:22

16 Q. (By Mr. Loeser) Well, can you read into
17 the record the second bullet.

18 A. The second bullet is "We will ask them to
19 make a final decision on which products they want
20 to justify retaining and to complete a one-slide 08:00:39
21 template for each explaining why its value is worth
22 the risk it creates."

23 Q. What do you interpret that to mean?

24 MR. SCHWING: Same objections.

25 THE DEPONENT: Again, like I don't feel I 08:00:54

Page 650

HIGHLY CONFIDENTIAL

1 can give a -- an accurate company answer onto that. 08:00:56

2 From my experience being involved in these kinds of

3 things in the past, typically an engineering

4 manager or product manager or some other person

5 would be responsible for collecting the 08:01:15

6 information. It's possible that directors would

7 have done that work. I -- I don't know how teams

8 were -- were expected to do this.

9 Q. (By Mr. Loeser) Let's look again at

10 the -- at the next page, and let's assume for the 08:01:33

11 moment this is the one-page template that is

12 referred to on the prior page.

13 We went through sizing. The next

14 category of information says "metrics impact"; is

15 that right? 08:01:45

16 A. That's what I see on the slide.

17 Q. And the first item listed there is MAU;

18 is that right?

19 A. That's what I see on the slide, right.

20 Q. And what is MAU? 08:01:56

21 A. MAU, as I understand it, refers to

22 monthly active users.

23 Q. Okay. And the next is "MSI."

24 What is that?

25 A. My understanding is that that refers to 08:02:05

Page 651

HIGHLY CONFIDENTIAL

1 meaningful social interactions. 08:02:07

2 Q. What is that?

3 A. Meaning social interactions is a -- is a

4 metric used to understand the engagement with

5 content posted to Facebook. 08:02:20

6 Q. And how is it -- is it ranked or scored

7 somehow or...

8 A. There's a way in which MSI is -- is

9 calculated. I'm not an expert in it, in exactly

10 how it is calculated. 08:02:39

11 Q. Why is it tracked?

12 MR. SCHWING: Outside the scope.

13 THE DEPONENT: I think it's -- it's one

14 of many measures of -- of engagement. It's -- it's

15 one that the company has used previously to -- to 08:02:51

16 understand engagement as -- as a concept.

17 Q. (By Mr. Loeser) The next thing is "MBI."

18 What is that?

19 A. I don't know what MBI stands for.

20 Q. And the next item here is "revenue." 08:03:05

21 What does that stand for?

22 MR. SCHWING: Outside of the scope.

23 THE DEPONENT: Well, I think, again,

24 I'll -- don't want to give a company answer to

25 that, because I don't think it's -- I didn't write 08:03:20

Page 652

HIGHLY CONFIDENTIAL

1 the slides. 08:03:23

2 But in a personal capacity, I don't
3 "revenue" stands for anything. It just means
4 revenue.

5 Q. (By Mr. Loeser) Okay. And it says 08:03:27
6 "revenue attribution."

7 So is the idea here, as for all of these
8 categories, that this is the revenue that would be
9 associated with the particular app that had access
10 to this API? 08:03:38

11 MR. SCHWING: Calls for speculation.
12 Outside the scope.

13 THE DEPONENT: I'm not sure what was
14 expected to be put in this slide. It wouldn't be
15 related to -- to a specific app, no. 08:03:54

16 Q. (By Mr. Loeser) What would it be related
17 to?

18 MR. SCHWING: Same objections.

19 THE DEPONENT: Again, I don't know what
20 it would be related to. There's no detail here of 08:04:03
21 exactly what is expected in terms of attribution.
22 I would expect that would differ greatly based on
23 the API being assessed.

24 Q. (By Mr. Loeser) So can you tell me how
25 Facebook defines "revenue" for purposes of 08:04:20

Page 653

HIGHLY CONFIDENTIAL

1 completing this template? 08:04:25

2 A. I can't explain what "revenue" means

3 in -- in this context. I think that the -- the ask

4 here is -- is not documented, and I would be

5 speculating by -- by trying to -- trying to explain 08:04:44

6 what -- what "revenue attribution" means.

7 Q. And the next line here says "risk."

8 Do you see that?

9 A. I do see that.

10 Q. And following down that row, it says "PII 08:04:58

11 emitted (yes/no)."

12 Do you see that?

13 A. I do.

14 Q. What do you take that to mean? How does

15 that relate to risk? 08:05:12

16 MR. SCHWING: Compound. Vague. Outside

17 the scope.

18 THE DEPONENT: So, again, in terms of

19 a -- I don't think I can give a company answer here

20 because I wasn't involved in writing this deck and 08:05:20

21 haven't spoken to its authors.

22 In -- my understanding is that it would

23 be a determination of whether or not the -- the API

24 or product being assessed here emitted PII, defined

25 in some way which I have -- I have not -- have not 08:05:37

Page 654

HIGHLY CONFIDENTIAL

1 seen and is not defined specifically in this deck. 08:05:41

2 Q. (By Mr. Loeser) And does Facebook
3 consider APIs that emit PII as being more risky
4 than those that don't?

5 MR. SCHWING: Vague. Outside the scope. 08:05:54

6 THE DEPONENT: I don't think -- I
7 can't -- again, can't give an answer on behalf of
8 the Facebook here. I think they're -- again,
9 giving you my -- my take from a personal
10 perspective here, APIs that emit PII are certainly 08:06:10
11 worthy of -- of being rigorously understood. But
12 there are also other APIs that -- that maybe don't
13 emit PII that would also be considered risky. So I
14 don't think it's just PII.

15 Q. (By Mr. Loeser) You see the next item on 08:06:35
16 this template here, "Strategic Value"?

17 A. I do see that.

18 Q. And how does Facebook define "strategic
19 value" for purposes of deciding whether to continue
20 allowing access to private APIs? 08:06:51

21 MR. SCHWING: Outside the scope. Object
22 to form.

23 THE DEPONENT: So as I said, I didn't
24 write this slide deck and haven't spoken to its
25 authors, so I can't understand what they were 08:07:06

Page 655

HIGHLY CONFIDENTIAL

1 referring to by this. And I think as -- as we 08:07:08
2 discussed previously, there's no universal
3 understanding of what "strategic value" means, and
4 it likely differs between product group across the
5 company. 08:07:26

6 So I don't think there's a standard
7 definition I'm aware of that I could cite now.

8 Q. (By Mr. Loeser) So you recall from this
9 deck that the -- the template was intended to
10 justify the decision to retain a private API that 08:07:41
11 was considered high value/high risk; is that right?

12 MR. SCHWING: Object to form. Misstates
13 testimony. Outside the scope.

14 THE DEPONENT: So can you ask the
15 question again to make sure I understand what 08:08:00
16 you're asking.

17 Q. (By Mr. Loeser) Yes.

18 So you recall from this deck that the
19 template was intended to justify the decision to
20 retain a private API that was considered high 08:08:07
21 value/high risk; is that right?

22 MR. SCHWING: Same objections.

23 THE DEPONENT: Again, my understanding is
24 that from -- from reading this is that this was
25 designed to capture information to help inform a 08:08:21

Page 656

HIGHLY CONFIDENTIAL

1 decision. 08:08:26

2 Q. (By Mr. Loeser) And so in connection
3 with the deciding whether to retain a high-risk API
4 or product in 2019, Facebook identified whether
5 there was a strategic value associated with the API 08:08:36
6 or product, right?

7 MR. SCHWING: Same objections.

8 THE DEPONENT: I -- I don't know how
9 these decisions were -- were made. And we're
10 looking at a sample template here that -- that may 08:08:50
11 have been filled in in a bunch of different ways.
12 So I -- I couldn't -- I don't feel I could answer
13 on how this information was used.

14 Q. (By Mr. Loeser) Who at Facebook would be
15 able to answer that question? 08:09:13

16 MR. SCHWING: Calls for speculation.

17 If you know, go ahead and answer.

18 THE DEPONENT: Yeah, I -- I don't know
19 who at Facebook would -- would be able to answer
20 that question. 08:09:25

21 Q. (By Mr. Loeser) This assessment that is
22 discussed in this deck assessed APIs that emitted
23 friend data, among other APIs; is that right?

24 A. I'm not -- I'm not sure exactly which --
25 what this -- what this covered. So, again, I -- I 08:09:58

Page 657

HIGHLY CONFIDENTIAL

1 can't confirm which APIs were covered by this. 08:10:03

2 Oh, yeah. If this covers all APIs in
3 platform products, again, that's what it says in
4 this slide. But, again, I don't know exactly what
5 was -- what was covered by this -- by the process 08:10:17
6 articulated in this deck.

7 Q. And based upon this process articulated
8 in the deck, was the result a decision to whitelist
9 APIs or -- or products?

10 A. Sorry. Can you ask the question again. 08:10:56
11 I'm not sure I understood.

12 Q. Sure.

13 This deck describes a process that
14 involves a one-page template that provides details
15 about a product or API that's provided by the 08:11:04
16 director associated with that product or API, and
17 the template was then used to decide whether to
18 retain or deprecate the product group; is that
19 right?

20 MR. SCHWING: Lacks foundation. Outside 08:11:22
21 the scope.

22 THE DEPONENT: I'm not -- again, I'm not
23 confident in this -- I'm not expert in -- in -- in
24 this process or how it was followed or the
25 decisions that were taken as a result of this 08:11:36

Page 658

HIGHLY CONFIDENTIAL

1 process. 08:11:38

2 Q. (By Mr. Loeser) Okay. Based upon your
3 preparation for your testimony today, can you tell
4 me whether for products or APIs that Facebook
5 decided to retain through this process, would that 08:11:51
6 result in a whitelist for that product or API?

7 MR. SCHWING: Object to form.

8 THE DEPONENT: It -- I -- I don't know
9 whether or not -- what -- what the result of this
10 process would have been and what the -- the 08:12:12
11 specifics as to what happened next likely depended
12 on a number of factors that I -- that I'd be
13 speculating about. So it's hard -- hard to give an
14 answer.

15 I don't know exactly what happened in 08:12:26
16 these decisions and what the resulting results
17 were.

18 Q. (By Mr. Loeser) Who at Facebook would
19 know whether the result of this process was a
20 whitelisting decision? 08:12:38

21 A. I don't know who at Facebook would --
22 would -- would know the answer to that question.

23 Q. If you go to the next exhibit.

24 MR. LOESER: We're going to pull up the
25 next exhibit. Exhibit 29. 08:13:12

Page 659

HIGHLY CONFIDENTIAL

1 Q. (By Mr. Loeser) Mr. Cross, I'm showing 08:13:45
2 you what's been previously marked as Exhibit 29,
3 which is an email from Jackie Rooney to the
4 management team dated March 22nd, 2018.

5 Do you see that? 08:14:03

6 A. I see that.

7 Q. And the "to" says "M Team."

8 Is that the management team?

9 A. Yes, that would be Facebook's executive
10 management team. 08:14:11

11 Q. And you see the subject is "Q&A briefing
12 for March 23, 2018"?

13 A. I see that, yeah.

14 Q. And are Q&A briefings something that
15 happened regularly at Facebook? 08:14:29

16 A. Yes. Typically the leadership team does
17 a -- does a Q&A on a -- on a -- sometimes on a
18 Friday, sometimes it's on a different day. But
19 they're regular weekly occurrence or so on.

20 Q. Mr. Cross, take a minute and -- and 08:14:44
21 review this -- this email, if you would.

22 A. I will do. Thank you.

23 MR. SCHWING: Mr. Loeser, is this a
24 document that you provided us notice with in
25 advance of this depo? 08:15:35

Page 660

HIGHLY CONFIDENTIAL

1 MR. LOESER: Yes. We can double-check 08:15:36
2 right now.

3 THE DEPONENT: Okay. Yes, I have
4 reviewed the document.

5 Q. (By Mr. Loeser) Now, this Q&A briefing 08:16:07
6 discusses the Cambridge Analytica events; is that
7 right?

8 A. I see Cambridge Analytica mentioned a
9 couple of times or -- or once in the document.

10 Q. Do you recall other Q&A briefings in 08:16:22
11 which Cambridge Analytica was discussed?

12 MR. SCHWING: I'm going to state for the
13 record that I don't believe that this was noticed
14 as a document that we were going to be providing
15 testimony on today. 08:16:33

16 So, Mr. Cross, it may have been provided
17 earlier.

18 I just want to make sure Mr. Cross has
19 the opportunity to -- to take a look at it.

20 MR. LOESER: Well, yeah. It was 08:16:47
21 provided. I don't know if it was provided for
22 today. There was a subset of documents --

23 MR. SCHWING: Yeah.

24 MR. LOESER: -- it wasn't.

25 MR. SCHWING: I think Mr. Melamed 08:16:55

Page 661

HIGHLY CONFIDENTIAL

1 indicated -- and I don't want to take much time on 08:16:56
2 this -- indicated that the only documents we needed
3 to be ready on were the ones that he identified in
4 his email.

5 So, Mr. Cross, it's -- I'll allow the 08:17:03
6 questioning on it.

7 I just want to make sure Mr. Cross has an
8 opportunity to review it, since it wasn't
9 identified.

10 So, Mr. Cross, just let us know when 08:17:12
11 you're ready and we'll continue.

12 MR. LOESER: And for the record,
13 Mr. Melamed identified the documents that were
14 subject to the notices for which he was
15 responsible. We previously provided Mr. Cross with 08:17:20
16 a series of documents for his examination, and this
17 was included.

18 MR. SCHWING: Okay. Well, I don't want
19 to take up too much time here.

20 We also received notice with respect to 6 08:17:30
21 and 7. There's no problem with asking questions
22 about it. It's fine. We'll just --

23 Go ahead and take your time, Mr. Cross,
24 to look at it, and then when you're ready, just let
25 us know. 08:17:41

HIGHLY CONFIDENTIAL

1 THE DEPONENT: Yeah. Please -- please 08:17:48
2 ask your questions, Mr. Loeser.

3 Q. (By Mr. Loeser) Sure. If we go down
4 this briefing to the heading "Suggested Guidance."

5 Do you see that? 08:17:57

6 A. I do see that.

7 Q. And it says "Q1: What is the message we
8 would like to send out from employees to their
9 friends and family without constituting a leak of
10 internal info?" 08:18:12

11 Do you see that?

12 A. I see that.

13 Q. And can you read the second bullet.

14 A. The second bullet is "This is serious --
15 we made mistakes and we are fully owning that -- we 08:18:29
16 know we've got work to do to regain people's
17 trust."

18 Q. Okay. And can you read the next bullet
19 as well.

20 A. "We took action in 2014 to dramatically 08:18:39
21 limit the data apps could access, but we also made
22 mistakes. This was a violation of trust between
23 Facebook and the people who use our service."

24 Q. And what are the mistakes being referred
25 to here? 08:18:54

Page 663

HIGHLY CONFIDENTIAL

1 MR. SCHWING: Object to the form. 08:18:57

2 Outside the scope.

3 THE DEPONENT: I couldn't comment on --

4 I'm not sure I -- I can comment on what -- what

5 this is referring to from a company's perspective. 08:19:07

6 I haven't -- I haven't prepared -- it's not

7 something I'm an expert on in terms of -- the comms

8 work around this at the time.

9 Q. (By Mr. Loeser) Well, Mr. Cross, I'm

10 asking you as Facebook's 30(b)(6) designee what 08:19:23

11 Facebook means by "mistakes" in this context.

12 Are you prepared to answer that question?

13 A. No, I'm not sure --

14 MR. SCHWING: Objection.

15 THE DEPONENT: Sorry. 08:19:34

16 MR. SCHWING: Outside the scope of topics

17 6 and 7.

18 Q. (By Mr. Loeser) Mr. Cross, did the

19 mistakes relate to continuing to allow access to

20 friend data after 2014? 08:19:44

21 A. I'm -- I'm not sure, again, I can comment

22 on what -- what is meant here by the term

23 "mistakes."

24 Q. And, Mr. Cross, did the mistakes refer to

25 whitelisting decisions Facebook had made that 08:20:00

Page 664

HIGHLY CONFIDENTIAL

1 continued to allow access to friend data after 08:20:03

2 2014?

3 A. I don't think I can comment on what --

4 what's being referred to by -- by the word

5 "mistakes" here. 08:20:11

6 Q. So who at Facebook can provide the answer

7 to the questions I just asked?

8 MR. SCHWING: Calls for speculation.

9 THE DEPONENT: Yeah, I -- I couldn't give

10 you the name -- like a name of somebody that -- 08:20:25

11 that would be able to answer that question.

12 Q. (By Mr. Loeser) Does Facebook believe

13 that telling users that apps would no longer be

14 able to obtain friend data while continuing to

15 allow a number of apps to do just that was a 08:20:39

16 mistake?

17 MR. SCHWING: Object to form.

18 THE DEPONENT: Yeah, I don't feel I can

19 comment on the -- the terminology mistakes and what

20 Facebook meant by it. It's not something I'm an 08:20:56

21 expert in, I'm afraid.

22 Q. (By Mr. Loeser) Are you prepared to

23 answer that question today, Mr. Cross?

24 MR. SCHWING: Object to form.

25 THE DEPONENT: I don't -- I don't feel 08:21:05

Page 665

HIGHLY CONFIDENTIAL

1 I'm able to answer that question on behalf of the 08:21:07
2 company, no.

3 Q. (By Mr. Loeser) Does Facebook believe it
4 was a breach of user trust to tell users that apps
5 would no longer be able to obtain friend data while 08:21:14
6 continuing to allow a number of apps to do just
7 that?

8 MR. SCHWING: Object to form. Outside
9 the scope.

10 THE DEPONENT: Again, I'm not an expert 08:21:25
11 in what is meant by the phrase "mistakes" here or
12 what the company is referring to and -- and
13 specifically what -- what is meant by that phrase.
14 So I'm afraid I don't feel I can answer that
15 question on behalf of the company. 08:21:40

16 Q. (By Mr. Loeser) Mr. Cross, what is the
17 "breach of trust" referred to in this employee
18 communications sent by the management team?

19 MR. SCHWING: Same objections.

20 THE DEPONENT: I don't feel I can comment 08:22:02
21 on -- on what's meant by "breach of trust" here on
22 behalf of the company. That's a -- that's a --
23 that's a term I like -- that could mean several
24 things that I -- I don't feel prepared to -- to
25 opine on. 08:22:21

Page 666

HIGHLY CONFIDENTIAL

1 Q. (By Mr. Loeser) And, Mr. Cross, what 08:22:24
2 does -- what does Facebook believe "breach of
3 trust" means in this context?

4 MR. SCHWING: Outside of the scope of the
5 witness. Object to form. 08:22:34

6 THE DEPONENT: Again, this -- the framing
7 here is not something I'm an expert in, and so I
8 don't feel I can answer on behalf of the company.

9 Q. (By Mr. Loeser) Mr. Cross, what is
10 Facebook's position on whether there was a breach 08:22:50
11 of trust relating to friend data?

12 MR. SCHWING: Object to form. Outside
13 the scope.

14 THE DEPONENT: So, again, I don't think
15 I -- I -- this -- the communications here and 08:23:03
16 the -- the terminology here is not something I'm --
17 I'm an expert in. And I -- I don't feel prepared
18 to -- I don't feel I'm able to give an answer on
19 behalf of the company there.

20 Q. (By Mr. Loeser) Mr. Cross, what is 08:23:20
21 Facebook's position on whether mistakes were made
22 by Facebook in connection with the deprecation of
23 friend data?

24 MR. SCHWING: Object to the scope.
25 Outside the scope. Object to form. 08:23:34

HIGHLY CONFIDENTIAL

1 THE DEPONENT: So, again, I don't -- I 08:23:41
2 don't feel like -- like I don't feel this an area
3 of expertise of mine, and therefore I -- I don't
4 feel able to provide an answer on behalf of the
5 company as to specifically what's meant by that -- 08:23:51
6 by that phrase.

7 Q. (By Mr. Loeser) Mr. Cross, we're going
8 to introduce as an exhibit interrogatory responses
9 by Facebook.

10 MR. LOESER: And for the record, this is 08:24:11
11 Defendant Facebook, Inc.'s second amended responses
12 and objections to plaintiff's fourth set of
13 interrogatories.

14 It's a long document, and I'm only going
15 to ask you questions about specific pages, so 08:24:26
16 there's -- we don't spend a lot of time reviewing
17 the 460 pages that are about to become an exhibit.

18 MR. SCHWING: Derek, what's the -- is
19 there an exhibit number for this one?

20 MR. LOESER: Yes. It's Exhibit 128, and 08:25:09
21 the date of the verification for the responses is
22 February 11th, 2021. These were verified by Steven
23 Elia and also by the person we've been referring to
24 as KP.

25 Q. (By Mr. Loeser) Mr. Cross, your notes 08:25:33

Page 668

HIGHLY CONFIDENTIAL

1 that you produced following the first day of your 08:25:34
2 testimony referred to Facebook's interrogatories
3 responses.

4 Do you recall that?

5 A. I don't recall that. Let me -- let me 08:25:52
6 review. Can you point to the thing that you're
7 referencing there?

8 Q. In your notes?

9 A. Yeah.

10 Q. I can. I will have to take a moment to 08:26:17
11 go find the notes, but -- but I can do that as
12 well. Bear with us.

13 While we're looking for that, have you
14 reviewed these signed interrogatories responses
15 previously, Mr. Cross? 08:26:46

16 A. I have -- I have -- I have seen this
17 document before, but it's extremely long. I've --
18 I've looked at some parts of it. I couldn't say
19 I've read every word.

20 Q. And did you have any role in -- in 08:26:59
21 providing these responses?

22 A. No, I do not recall having any -- any
23 role in -- in providing these responses.

24 MR. LOESER: We put your Exhibit 335 up.

25 THE DEPONENT: Thank you. 08:27:18

Page 669

HIGHLY CONFIDENTIAL

1 MR. LOESER: In reference to your -- 08:27:18

2 Q. (By Mr. Loeser) Okay. Under "Other
3 Capabilities" at the end of the page, there is a
4 quotation: "The vast majority of capabilities that
5 allowed access to private APIs did not enable
6 third-party apps to access user data."

08:27:29

7 That -- that is a statement made in
8 interrogatories. Is that where you obtained the
9 statement?

10 A. I -- I couldn't confirm where I pulled 08:27:43
11 that statement from. It's their -- it's their
12 attribution. If it's -- if it's in the
13 interrogatory responses, it's possible -- it's
14 likely that that's -- that's where I took it from,
15 but I couldn't be 100 percent certain. 08:27:57

16 Q. Okay. Thank you for that.

17 We can go to page 63 of the interrogatory
18 responses.

19 And this is -- the numbering Facebook
20 used is a little odd. This says "Response No. 77." 08:28:16
21 However, if you go back to page 60, this is
22 Facebook's response to interrogatory No. 14. I'm
23 just saying that for the record.

24 So we're back on Exhibit 128. We're
25 looking at Facebook's response to interrogatory 08:28:34

Page 670

HIGHLY CONFIDENTIAL

1 No. 14, which starts on page 60. And on page 63, 08:28:36
2 under the heading "Response No. 77," Facebook
3 provides a definition for "integration partner."

4 So if you could look at the paragraph
5 under Response No. 77, and I'll read what matters, 08:29:03
6 and then we can look at some more specific
7 responses here.

8 Facebook writes "'Business partners' is
9 not a term of art used within Facebook used to
10 describe third parties to whom Facebook outsourced 08:29:18
11 the time, labor, and money required to build
12 Facebook's platform from different devices and
13 operating systems pursuant to integration
14 partnerships.

15 "To avoid confusion, Facebook will refer 08:29:31
16 to these entities as 'integration partners.'
17 Facebook's integration partners are companies
18 Facebook engaged to build integrations for a
19 variety of devices, operating systems, and other
20 products where Facebook and its partners wanted to 08:29:45
21 offer people a way to receive Facebook or Facebook
22 experiences. These integrations were built by
23 Facebook partners for Facebook users that are
24 approved by Facebook, and they included."

25 Did I read that accurately? 08:29:58

Page 671

HIGHLY CONFIDENTIAL

1 A. I think you read that accurately. 08:30:00

2 Q. Okay. And there are --

3 MR. SCHWING: I'm sorry, Mr. Loeser.

4 Just this is another document that wasn't

5 identified for this session. 08:30:07

6 So, Mr. Cross, I know it's a long

7 document. You certainly don't need to look at the

8 whole thing. But I think it's appropriate for you

9 to take a look at it and make sure for -- you're

10 ready to testify on it. 08:30:20

11 You know, let's not take too long, but do

12 please take a look and then can you answer

13 questions about it.

14 MR. LOESER: Why don't we go off the

15 record for a second. 08:30:34

16 MR. SCHWING: Okay.

17 THE VIDEOGRAPHER: Okay. Off the record.

18 It's 8:48 p.m.

19 (Recess taken.)

20 THE VIDEOGRAPHER: We're back on the 08:45:55

21 record. It's 9:04 p.m.

22 (Discussion off the stenographic record.)

23 Q. (By Mr. Loeser) Okay. So back on the

24 interrogatory responses and looking at page 63, and

25 Facebook has defined "integration partners" in this 08:47:11

Page 672

HIGHLY CONFIDENTIAL

1 response, and it gives four examples of integration 08:47:14
2 partners that are reflected in the bullets on this
3 page and the following pages.

4 And those four examples are

5 "Facebook-branded apps, social networking service 08:47:23
6 hubs, syncing integrations, and USSD services."

7 Are there other types of integration
8 partners at Facebook?

9 MR. SCHWING: Outside the scope.

10 THE DEPONENT: I'm not sure if -- I'm not 08:47:45
11 if there -- if there are other things that may have
12 been called "integration partners" at various
13 times. So I'm -- I'm not -- I'm not sure, I'm
14 afraid.

15 Q. (By Mr. Loeser) Is -- does Facebook have 08:48:01
16 the -- what does Facebook mean by "integration
17 partner"?

18 MR. SCHWING: Outside the scope.

19 THE DEPONENT: So I'm -- "integration
20 partners" is defined here. But I think -- I'm not 08:48:20
21 able to give a definition beyond what's in this --
22 in this document.

23 Q. (By Mr. Loeser) Okay. Are there any
24 other types of partner that you consider or that --
25 strike that. 08:48:35

Page 673

HIGHLY CONFIDENTIAL

1 Are there any types of partners that 08:48:35
2 Facebook considers an integration partner other
3 than what's listed in this interrogatory response?

4 MR. SCHWING: Object to the form.

5 Outside the scope. 08:48:46

6 THE DEPONENT: So I think it -- in terms
7 of like Facebook's definition of it, I think it's
8 hard -- hard for me to give anything. I don't feel
9 I'm able to give anything beyond -- beyond what's
10 in this document. 08:49:01

11 What I can say, though, more generally is
12 you -- at various times, any integration -- an app
13 that uses the Facebook developer platform could be
14 termed an integration, and there were entities that
15 would be referred to as -- as -- as partners that 08:49:19
16 had integrations that might not meet the -- the
17 definition "integration partners" as per this --
18 this document.

19 So it's just -- just in terminology used,
20 I think there is a way to interpret that more 08:49:37
21 broadly.

22 Q. (By Mr. Loeser) Okay. So what types of
23 partners would you add to this list if you were to
24 include those that we just mentioned?

25 MR. SCHWING: It's outside the scope. 08:49:54

Page 674

HIGHLY CONFIDENTIAL

1 It's vague. 08:49:55

2 THE DEPONENT: Yeah, I wouldn't -- I

3 don't think I can give a -- a Facebook

4 determination of -- of a company like determination

5 of -- of an answer to that question. 08:50:06

6 But, again, kind of a personal

7 perspective with my experience working on this

8 stuff, I might -- I might have used the phrase

9 "integration partner" or "partner integration" or

10 "partner" or "integration" to at times refer to 08:50:25

11 other applications that were integrated with

12 Facebook that weren't on this -- on this definition

13 list.

14 Q. (By Mr. Loeser) Is every integration

15 partner under contract with Facebook? 08:50:46

16 A. When you say --

17 MR. SCHWING: Yeah, sorry.

18 Objection. It's vague. Outside the

19 scope.

20 THE DEPONENT: When you say "integration 08:50:57

21 partner," do you mean integration partners as -- as

22 defined in this document?

23 Q. (By Mr. Loeser) I mean integration

24 partners as that term is used by Facebook.

25 MR. SCHWING: Objection. 08:51:13

Page 675

HIGHLY CONFIDENTIAL

1 THE DEPONENT: Yeah, no -- 08:51:14

2 MR. SCHWING: Vague and outside the
3 scope.

4 Mr. Cross, I know this is challenging.

5 It's also getting late in the day for you. But 08:51:17

6 just give me a second to -- to state an objection.
7 Thank you.

8 THE DEPONENT: Of course. My apologies.

9 I -- I don't know whether or not every --
10 every entity determined here as integration 08:51:34

11 partners has a contract with Facebook, I'm afraid.

12 Q. (By Mr. Loeser) Let's go to the next --
13 if you go to page 65, you'll see that -- I'll start
14 at the bottom of page 64.

15 Facebook writes "Below is a list of 08:51:51

16 Facebook's integration partners during the relevant
17 time period asserted by plaintiffs. For

18 information related to the period during which each
19 integration partner was active, Facebook directs

20 plaintiffs to Facebook's responses to Interrogatory 08:52:05

21 No. 15. The lack of an access revocation date does
22 not signify that such access was never revoked or
23 otherwise terminated."

24 Do you see that language?

25 A. I see that, yeah. 08:52:19

HIGHLY CONFIDENTIAL

1 Q. And then do you see over pages 65 and 66 08:52:20
2 and 67 a list of entities that Facebook has
3 identified as integration partners?

4 A. I see that list of entities that Facebook
5 has identified as integration partners in this 08:52:37
6 document, yes.

7 Q. Okay. And just is -- as Facebook's
8 corporate designee, can you tell me whether this
9 list is a complete list of all of Facebook's
10 integration partners? 08:52:50

11 MR. SCHWING: Outside of the scope.

12 THE DEPONENT: I can't comment on
13 what's -- what's beyond what's in this document. I
14 think this defines "integration partners" a certain
15 way and then -- and then gives a list, and I don't 08:53:08
16 think I have anything I can add beyond that.

17 Q. (By Mr. Loeser) Did all of these
18 integration partners have access to friend data
19 through private APIs?

20 A. I don't know if all of these entities had 08:53:28
21 access to -- to friends data through private APIs.

22 Q. Facebook knows the answer to that
23 question, right?

24 A. I -- I'm not sure if Facebook knows
25 whether or not each of these had access to friend 08:53:52

Page 677

HIGHLY CONFIDENTIAL

1 data. It's -- it's possible Facebook knows, but 08:53:55
2 I -- I'm not sure of how -- of giving sort of an
3 answer to that question.

4 Q. Okay. Let's look at page 68, which has
5 Interrogatory No. 15. 08:54:14

6 And you'll see that on page 72 -- again
7 you'll have to -- I'll represent to you that
8 despite the numbering on page 72 which says
9 Response No. 78, this is Facebook's response to
10 Interrogatory No. 15. And I'll read the first 08:54:43
11 paragraph here and then I have a few questions to
12 ask you.

13 This states: "With regard to the APIs
14 Facebook's integration partners had access to,
15 Facebook has provided a table identifying by 08:54:59
16 integration partner the APIs that may have allowed
17 each integration partner to query (but were not
18 necessarily -- but would not have necessarily
19 returned) endpoints associated with users friends'
20 data fields during the relevant time period, their 08:55:18
21 associated apps, the date ranges during which they
22 were active, and the data fields associated with
23 the APIs they had access to."

24 Did I read that correctly?

25 A. You read that correctly. 08:55:30

Page 678

HIGHLY CONFIDENTIAL

1 Q. Now, where this says that the APIs that 08:55:34
2 may have allowed each integration partner to query,
3 but would not have necessarily returned
4 endpoints --

5 Do you see that? 08:55:45

6 A. I see that language.

7 Q. Does Facebook have information on whether
8 particular data fields available to apps were
9 actually accessed or collected by apps?

10 MR. SCHWING: Objection. Vague. 08:55:58

11 THE DEPONENT: Can you help me understand
12 the -- the time period you're referring to here?

13 Q. (By Mr. Loeser) Let's talk about the
14 time period 2015 to the present.

15 A. So my understanding is that today, 08:56:16

16 Facebook has a way of determining which information
17 has been queried and emitted to apps, but that
18 system came into existence in around 2020. Prior
19 to that, Facebook had an understanding of which

20 APIs were being called by -- by a given 08:56:48

21 application, so which API -- specific APIs were
22 being called, but -- but not necessarily whether or
23 not that emitted friend -- friend information.

24 Q. And as to the -- what APIs were called,
25 is that information that was logged by Facebook? 08:57:11

Page 679

HIGHLY CONFIDENTIAL

1 Prior to the changes in 2020, which sounds like 08:57:12
2 provided more -- more information, but in the prior
3 iteration when Facebook's -- sounds like storage
4 was limited to identifying what APIs were called,
5 is that information that was logged? 08:57:32

6 A. Yes, there were mechanisms in place to --
7 to log API calls being made by applications. But
8 exactly what was logged and the retention of
9 those -- those logs is -- is -- is complicated to
10 explain and -- and not something I can fully 08:57:53
11 explain.

12 Q. And is it your understanding that the
13 logging was somehow incomplete previously?

14 MR. SCHWING: Objection. Vague.

15 THE DEPONENT: When you say "previously," 08:58:10
16 do you mean before 2020?

17 Q. (By Mr. Loeser) Right.

18 A. I -- the -- the -- my point is around
19 the -- the retention time window. So my
20 understanding is API hits were logged, but the -- 08:58:28
21 the amount of -- the -- the time for which they
22 were retained was -- is -- is variable.

23 Q. And do you have a general understanding
24 of the time -- what was Facebook's retention policy
25 for that information? 08:58:48

HIGHLY CONFIDENTIAL

1 MR. SCHWING: Outside the scope. 08:58:52

2 THE DEPONENT: I don't know what
3 Facebook's retention policy was for -- for that
4 information. There were various ways in which that
5 information was -- was stored and aggregated and 08:59:04
6 retain over time.

7 Q. (By Mr. Loeser) And you said that the --
8 what information was emitted was not necessarily
9 tracked prior to 2020. Was it ever tracked?

10 MR. SCHWING: Object to form. 08:59:21

11 THE DEPONENT: My understanding is there
12 were mechanisms in place that could be used to
13 track what information was emitted, but they
14 were -- they had to be set up specifically for --
15 for specific applications for a specific time due 08:59:41
16 to the volumes of information that -- that that
17 would entail.

18 Q. (By Mr. Loeser) And were there instances
19 in which that was set up for specific apps for
20 specific times? 08:59:55

21 A. I don't know whether or not that
22 information was logged for -- for specific apps for
23 specific times. I'm -- I'm not aware of the
24 specifics.

25 Q. And who would you ask to answer that 09:00:10

Page 681

HIGHLY CONFIDENTIAL

1 question? 09:00:11

2 A. I would attempt to speak to someone on
3 the platform engineering team to -- to determine if
4 there is -- was such a facility and if there are
5 records of when it was used. 09:00:27

6 Q. You used the expression "source of truth"
7 before. Is there a person who would be the source
8 of truth for that information.

9 MR. SCHWING: Calls for speculation.

10 THE DEPONENT: Excuse me. 09:00:41

11 There's likely no one person that's the
12 source of truth. There are people that have
13 knowledge of how these systems worked who might be
14 able to shed light on it. So I think that's -- the
15 best we'd have. 09:01:00

16 Q. (By Mr. Loeser) Okay. Now, post 2020,
17 you testified that there's a system that does track
18 the information that is emitted to APIs for third
19 parties; is that right?

20 A. That's my understanding -- 09:01:14

21 MR. SCHWING: Hold on --

22 THE DEPONENT: I keep doing that. Sorry,
23 Austin. You go.

24 MR. SCHWING: I think it misstates his
25 testimony -- well, it may mistake his testimony. 09:01:23

Page 682

HIGHLY CONFIDENTIAL

1 If you could ask that question again just 09:01:25
2 to make sure it's clear, that would be very
3 helpful, I think.

4 MR. LOESER: I'll just ask another
5 question. 09:01:33

6 Q. (By Mr. Loeser) So for those -- so post
7 2020, there are apps that -- I'm sorry. There are
8 APIs that emit some friend data; is that right?

9 A. I don't -- I can't comment on which APIs
10 exist post 2020 and the information that's emitted. 09:01:54

11 Q. Facebook knows whether there are APIs
12 post 2020 that emit friend data?

13 A. My understanding is that --
14 Can you help me understand what you mean
15 by "friend data"? 09:02:10

16 Q. Data about users' friends.

17 A. When you say "data about users' friends,"
18 could you -- could you be more specific?

19 Q. I feel like we've had this conversation.
20 But I'm asking about Facebook's understanding of 09:02:27
21 the term "friend data," which is used repeatedly
22 and extensively throughout Facebook's records.

23 And I'm simply asking you in the system
24 that became operative in 2020 if Facebook can
25 identify those APIs that emit friend data, using 09:02:44

HIGHLY CONFIDENTIAL

1 Facebook's definition of "friend data." 09:02:50

2 MR. SCHWING: Object to form.

3 THE DEPONENT: My understanding is there

4 is a system in place that allows Facebook to know

5 what information is being emitted to applications 09:03:04

6 and which users are included -- which users'

7 information is included in those -- those API

8 responses.

9 MR. LOESER: Flip forward many pages in

10 these interrogatories to page 355. And you'll see 09:03:25

11 that Interrogatory No. 27 is -- asks Facebook to

12 "identify by name and time period all third parties

13 to whom Facebook granted whitelisted access, the

14 time period of the grant of whitelisted access, and

15 the third parties for which such access was 09:03:54

16 granted."

17 Do you see that?

18 A. Yeah. Can you just give me a few minutes

19 to read around this -- this area.

20 Q. Sure. 09:04:03

21 A. Okay. Sorry.

22 Do you -- do you have a question?

23 (Discussion off the stenographic record.)

24 Q. (By Mr. Loeser) So I'm referring you to

25 page -- the page we're looking at, 358. I'm going 09:05:39

Page 684

HIGHLY CONFIDENTIAL

1 to read the first paragraph. The first -- second 09:05:43
2 paragraph below response No. 87.

3 Facebook indicates "The first list below
4 consists of apps that requested and were given
5 permission by the app user to access friend 09:05:55
6 permissions at some point during the app's
7 existence and were given a one-time extension
8 allowing them to continue to access the field
9 available through Graph API v1 (potentially
10 including friend data) after the deprecation of 09:06:10
11 Graph API v1 in May 2015. These extensions were
12 for less than six months with the exception of one
13 company, which received an extension until
14 January 2016."

15 Do you see that? 09:06:23

16 A. I see that.

17 Q. So Graph API version 1 was deprecated in
18 May of 2015; is that right?

19 A. Facebook began removing access to Graph
20 AP v1 for applications beginning in April 2015, and 09:06:41
21 that process continued for -- for most applications
22 into -- into May 2015, as I -- as I understand it,
23 yes.

24 Q. And so if an extension went past
25 December 2015, the extension must have been for 09:07:00

Page 685

HIGHLY CONFIDENTIAL

1 more than six months after Graph API version 1 was 09:07:03
2 implemented, right?

3 A. Sorry. Can you say that again.

4 Q. Sure.

5 You just indicated that the -- the 09:07:15
6 deprecation occurred in May of 2015. That's when
7 that process was completed.

8 This answer indicates that extensions
9 were for less than six months with one exception,
10 and I'm just trying to understand the timeline. 09:07:29

11 So if you go to December of 2015, that's
12 more than six months after May of 2015; is that
13 right?

14 A. December is -- December 2015 is more than
15 six months after May 2015, yes. 09:07:43

16 Q. Okay. So any extension that lasted past
17 December of '15 must have been more than six
18 months, right?

19 A. I think -- I think that -- that's true,
20 yes. 09:08:01

21 Q. Let's take a look at -- if you will note
22 that starting on page 360 is the list referred to
23 in the paragraph I just read, and it's many, many
24 pages. But I'll just have you pick any page,
25 frankly. Let's take this page. 09:08:19

Page 686

HIGHLY CONFIDENTIAL

1 And if you look at the headers across the 09:08:21
2 top, there's -- there's a column for "Entity."
3 Do you see that?
4 A. I see that.
5 Q. And then "app name." 09:08:33
6 Do you see that?
7 A. I see that.
8 Q. And "app creation date."
9 Do you see that?
10 A. I see that. 09:08:39
11 Q. And then "access end date."
12 Do you see that?
13 A. I see that.
14 Q. And then "friend permissions."
15 Do you see that? 09:08:48
16 A. I see that.
17 Q. So I won't make you count them myself, so
18 you'll have to take my word, but I've gone through
19 this entire list and I've counted 15 different apps
20 for which the extension lasted beyond 2015. 09:09:01
21 As Facebook's corporate designee, could
22 you please explain to why this rog states there's
23 only one app that had an extension longer than six
24 months when, based on the information provided, it
25 appears that there were at least 15 apps that had 09:09:17

Page 687

HIGHLY CONFIDENTIAL

1 extensions for more than six months? 09:09:20

2 MR. SCHWING: Object to the scope.

3 Object to form.

4 THE DEPONENT: I don't -- I don't -- I'm

5 not able to -- to -- to -- I don't feel I can 09:09:31

6 answer that question. I'm not sure how this

7 information was -- was pulled or -- what it's

8 referring to or any -- or the caveats that may

9 be -- may be behind it.

10 Q. (By Mr. Loeser) Let's just pick one 09:09:47

11 example on page 360. If you look at "Activision/

12 Bizarre Creations."

13 Do you see that?

14 A. I see that.

15 Q. It says "app creation date 2009-11-13." 09:10:06

16 Do you see that?

17 A. I see that.

18 Q. It says "access end date 2018-6-22."

19 Do you see that?

20 A. I see that. 09:10:23

21 Q. So that's access to these friend

22 permissions that was more than six months after the

23 deprecation of those permissions; is that right?

24 MR. SCHWING: Outside the scope. Object

25 to form. 09:10:35

Page 688

HIGHLY CONFIDENTIAL

1 THE DEPONENT: I -- as I say, like I'm 09:10:38
2 not an expert in -- in how this information was
3 pulled or -- or the caveats behind it or the -- or
4 the precise formulation of -- of the end date and
5 how that was determined, and so I don't feel I can 09:10:52
6 give an answer to that question, I'm afraid.

7 Q. (By Mr. Loeser) Why did Facebook allow
8 access to friend permissions for a number of these
9 apps into 2018?

10 MR. SCHWING: Object to form. Outside 09:11:11
11 the scope.

12 THE DEPONENT: As I say, I'm -- I'm not
13 sure as -- as I don't know exactly how this list
14 was -- was pulled together and the caveats behind
15 the data, and so I'm -- I'm not sure I can give an 09:11:24
16 answer to that question, I'm afraid.

17 Q. (By Mr. Loeser) How did Facebook
18 determine whether and for how long to grant each of
19 the extensions identified on this list that lasted
20 more than six months? 09:11:38

21 MR. SCHWING: Same objections.

22 THE DEPONENT: Again, I'm not sure how
23 each of these extensions was -- was granted and why
24 the access end date is listed here is beyond --
25 beyond the six months or 12 months previously 09:12:01

Page 689

HIGHLY CONFIDENTIAL

1 referred. 09:12:03

2 Q. (By Mr. Loeser) What did you do as
3 Facebook's corporate designee to understand the
4 reasons why for a number of the apps on this list
5 the extensions lasted more than six months? 09:12:16

6 MR. SCHWING: Object to scope. Object to
7 form.

8 THE DEPONENT: I spoke to -- I reviewed
9 these -- these documents and I spoke to some of the
10 engineers in -- involved in how the platform was -- 09:12:38
11 how whitelists were applied. And that's what I did
12 to prepare for this.

13 Q. (By Mr. Loeser) Those efforts didn't
14 provide you with the information needed to answer
15 the questions I have asked about why these 09:12:58
16 extensions lasted longer than six months, right?

17 MR. SCHWING: Same objections.

18 THE DEPONENT: As I say, I tried like --
19 I -- I don't have with me today an understanding
20 of -- of why the access end date is listed in 2018 09:13:19
21 for some of these applications. So no, I don't
22 feel I can explain why that's listed in that column
23 here.

24 Q. (By Mr. Loeser) Let's go to page 372.
25 And this page identifies the second list that was 09:13:36

Page 690

HIGHLY CONFIDENTIAL

1 referenced in Facebook's response to interrogatory 09:13:42
2 No. 27, and I will read the description of the list
3 at the top, and then I have a few questions for
4 you.

5 This states: "The second list below 09:13:52
6 consists of third-party applications that had
7 access to capabilities which were associated with
8 private APIs that may have allowed third-party
9 application developers to query end points
10 associated with data fields associated with a 09:14:10
11 user's friends after the transition to Graph API
12 v2."

13 Did I read that correctly?

14 A. I -- you did read that correctly.

15 Can I have a few minutes to -- to 09:14:23
16 understand the context here?

17 Q. Yes, of course.

18 MR. SCHWING: Derek, would you remind me
19 what page you were reading from?

20 MR. LOESER: I was reading from page 372. 09:14:36

21 MR. SCHWING: Thank you.

22 THE DEPONENT: Okay. I've had a chance
23 to read now. Thank you.

24 Q. (By Mr. Loeser) Okay. Sure.

25 And so the description I just read is 09:15:46

Page 691

HIGHLY CONFIDENTIAL

1 broken down into -- the list has several different 09:15:56
2 types of partner on it, and I'm just looking at
3 page 372. This list includes integration partners.

4 Do you see that?

5 A. I see that, yeah. 09:16:15

6 Q. And it includes business integrations.

7 Do you see that?

8 A. I see that too, yeah.

9 Q. What's the difference between a
10 integration partner and a business integration? 09:16:25

11 MR. SCHWING: Outside the scope.

12 THE DEPONENT: I'm not sure I can provide
13 anything more than -- is more than is included
14 here. Integration partners use private APIs to
15 provide Facebook's services to users. 09:16:47

16 Q. (By Mr. Loeser) And by --

17 A. As an example.

18 Q. I'm sorry.

19 A. The example provided there is the
20 Facebook app on BlackBerry devices. 09:16:58

21 Q. Okay. Previously you mentioned
22 integration partners or partners that had access to
23 the developer platform, right?

24 MR. SCHWING: Misstates testimony.

25 Object to form. 09:17:13

HIGHLY CONFIDENTIAL

1 THE DEPONENT: I would term any -- any 09:17:19
2 app that was using the Facebook developer platform
3 in -- in my explanation there, the Facebook
4 developer platform refers to the APIs and services
5 that were available to third-party developers, and 09:17:34
6 so integration partners would be using the -- the
7 Facebook developer platform.

8 Q. (By Mr. Loeser) And do business
9 integrations use the Facebook developer platform?

10 A. Yes, I think it would be fair to say 09:17:50
11 business integration use the Facebook developer
12 platform.

13 Q. Do media integrations use the Facebook
14 developer platform?

15 A. I'm not sure what's meant by "media 09:18:04
16 integrations" here, but there may have been APIs
17 made available through the Facebook developer
18 platform for -- for media organizations.

19 Q. And do search integrations use the
20 Facebook developer platform? 09:18:20

21 A. Again, I -- I would term that if they're
22 using APIs that that would be a part of the
23 Facebook developer platform.

24 Q. And do beta test APIs use the Facebook
25 developer platform? 09:18:41

HIGHLY CONFIDENTIAL

1 A. Yes, I -- I would term, again, here that 09:18:44
2 if -- if it's an API that's -- that's made
3 available by the Graph API, then I would have
4 considered that to be the Facebook developer
5 platform. 09:18:57

6 Q. If you go the next page.
7 Do specialized consumer experiences use
8 the Facebook developer platform?

9 A. Again, here I'm -- the Facebook developer
10 platform is a -- a term that I'm using here. I'm 09:19:12
11 not sure it's been defined anywhere -- anywhere
12 else. So it's a term that I'm using here.

13 So this -- these, to me, would include
14 things that -- that use the Facebook developer
15 platform, yes. 09:19:34

16 Q. Okay. And -- so what is the distinction
17 from Facebook's perspective between integration
18 partners and business integrations?

19 MR. SCHWING: Outside the scope. Object
20 to form. 09:19:51

21 THE DEPONENT: I'm not confident in --
22 like I am not sure I can shed light on that beyond
23 what the definitions are -- are here. Integration
24 partners are -- a defined -- defined in this
25 document and listed here, and business integrations 09:20:12

HIGHLY CONFIDENTIAL

1 would be things other than those. 09:20:18

2 Q. (By Mr. Loeser) Does Facebook, the
3 company, have a -- an understanding of the
4 difference between integration partners and
5 business integrations? 09:20:30

6 MR. SCHWING: Outside the scope. Object
7 to form.

8 THE DEPONENT: I'm not sure I can answer
9 that on behalf of the company beyond what's listed
10 here. Integration partners have been -- a 09:20:45
11 well-defined -- or defined in this document, but
12 business integrations is -- is defined here with
13 some illustrative examples.

14 Q. (By Mr. Loeser) So the list that's
15 provided after this information about different 09:20:59
16 types of partners covers pages 377 to 460, and
17 these are "all of the -- all third-party
18 applications that had access to capabilities which
19 were associated with private APIs that may have
20 allowed third-party application developers to query 09:21:24
21 endpoints associated with data fields associated
22 with the users' friends after the transition of
23 Graph API version 2."

24 And you see if we go to page 377, at the
25 top there's a header line, and the first entry is 09:21:39

Page 695

HIGHLY CONFIDENTIAL

1 "name of application whitelisted for capability." 09:21:43

2 Do you see that?

3 A. I see that.

4 Q. And there's a "capability name" column?

5 A. I see that. 09:21:52

6 Q. "Associated data."

7 Do you see that?

8 A. I see that.

9 Q. And then "date access granted."

10 Do you see that? 09:21:59

11 A. I see that.

12 Q. "Date accessed revoked"?

13 A. I see that.

14 Q. And then it says "used since

15 October 2014." 09:22:06

16 Do you see that?

17 A. I see that.

18 Q. And the last column is "10 or fewer

19 installs."

20 Did I read that accurately? 09:22:13

21 A. You read that accurately.

22 Q. So where was the information obtained

23 from to populate this list?

24 MR. SCHWING: Object to outside the

25 scope. 09:22:29

Page 696

HIGHLY CONFIDENTIAL

1 THE DEPONENT: I do not -- I don't know 09:22:32
2 specifically where the information -- like how --
3 how this table was populated, but what -- what I
4 can say more generally is that because this lists
5 capabilities, then the capability tool would have 09:22:47
6 been involved in -- in pulling this data.

7 Q. (By Mr. Loeser) And after 2020, was the
8 capability tool updated to have any information
9 about whether the API actually emitted data that
10 the capabilities provided access to? 09:23:07

11 A. Sorry. Can you -- can you just ask that
12 again, because there's a detail in there I think
13 matters.

14 Q. You mentioned that in 2020, a tool was
15 implemented that allowed Facebook to track data 09:23:19
16 that was emitted by APIs, not just whether the API
17 was accessed, right?

18 A. My understanding is that in -- in 2020 a
19 tool was built that tracks what information is
20 emitted to -- to applications on the Facebook 09:23:37
21 platform.

22 Q. And what is that tool called?

23 A. I'm not sure what -- what the tool is
24 called, but the -- my understanding is that the --
25 the tables are called the "Did tables." 09:23:55

Page 697

HIGHLY CONFIDENTIAL

1 Q. Could you spell that? 09:24:00

2 A. "Did," as in D-I-D.

3 Q. Okay. And where are those tables

4 maintained?

5 A. Sorry. When you say "where," do you mean 09:24:10

6 physically or in which system? How do you mean

7 "where"?

8 Q. Are they Hive tables, or are they some

9 other type of table?

10 A. My understanding is that they -- they 09:24:23

11 are -- they are stored in Hive, yes.

12 Q. And could you query those tables to

13 identify any apps that emitted friend data?

14 A. I couldn't query those tables, no.

15 Q. Could somebody at Facebook query those 09:24:38

16 tables for that information?

17 A. I presume so. The tables exist, and some

18 people at the company would have -- have the

19 ability to query them.

20 Q. If you had an apps user's ID or a 09:24:54

21 Facebook's user's ID, could you associate that

22 Facebook user with the friend data in that table?

23 A. I'm not familiar with -- with a precise

24 schema of those tables and how they work, so I

25 don't want to speculate as to what is and isn't 09:25:12

Page 698

HIGHLY CONFIDENTIAL

1 possible in using them. 09:25:16

2 Q. Now, as we saw, this list that covers
3 pages 377 to 360 has a whole lot of apps
4 identified. And when Facebook created these lists
5 in response to interrogatories 15 and interrogatory 09:25:35
6 27, did Facebook include entities that had access
7 to friend data through the Events API or the Pages
8 API or the Groups API or the Social Contexts API,
9 taggable friends, invitable friends, and user
10 posts? 09:25:56

11 MR. SCHWING: Objection. Outside the
12 scope. Object to form.

13 THE DEPONENT: I'm not sure what -- I'm
14 not able to comment on what was and was not
15 included to -- to produce these -- these outputs. 09:26:07

16 Q. (By Mr. Loeser) Okay. So if those APIs
17 had been included, would you expect to see them
18 identified somewhere in this list?

19 MR. SCHWING: Same objection.

20 THE DEPONENT: This list lists 09:26:23
21 capabilities specifically, as I understand it. And
22 so this is a list of capabilities that were deemed
23 by the authors of this document to potentially emit
24 friend data.

25 Q. (By Mr. Loeser) Okay. This is a list, 09:26:47

Page 699

HIGHLY CONFIDENTIAL

1 according to the description, of "third-party 09:26:48
2 applications that had access to capabilities which
3 were associated with private APIs that may have
4 allowed third-party application developers to query
5 endpoints associated with data field associated 09:27:00
6 with the user's friends," right?

7 MR. SCHWING: Outside the scope.

8 THE DEPONENT: I'm -- I'm sorry. Not
9 following where you reading that from.

10 Q. (By Mr. Loeser) I'm back on page 372, 09:27:20
11 the description of the list.

12 A. Cool. Yeah. Thank you.

13 Q. Okay. And that description, "third-party
14 applications that had access to capabilities which
15 were associated with private APIs that may have 09:27:37
16 allowed third-party application developers to query
17 endpoints associated with data fields associated
18 with the user's friends after the transition to
19 Graph API v2."

20 Do you see that description? 09:27:51

21 A. I see that description, yes.

22 Q. And that description would apply to, for
23 example, the Groups API, right?

24 MR. SCHWING: Outside the scope.

25 Go ahead. 09:28:01

Page 700

HIGHLY CONFIDENTIAL

1 THE DEPONENT: So this is referring to 09:28:04
2 private APIs or capabilities that gate private
3 APIs. And I'm not sure when this list was -- was
4 pulled, but the Groups API was -- was not a private
5 API. 09:28:20

6 Q. (By Mr. Loeser) And --
7 So it was a public API?

8 A. My understanding is that there was a
9 Groups and is a Groups API that was generally
10 available to -- to developers on the Facebook 09:28:41
11 developer platform.

12 Q. What about the social context API? Is
13 that publicly available?

14 A. The social context API was publicly
15 available. It was -- it was later deprecated. I 09:28:54
16 don't have the specific dates of that deprecation.

17 Q. Okay. So did it become a private API
18 after that?

19 MR. SCHWING: Object to form.

20 THE DEPONENT: I don't know how -- the 09:29:06
21 mechanism by which the social context API was
22 deprecated.

23 Q. (By Mr. Loeser) Has it been completed at
24 any point?

25 A. Sorry. I'm pausing to make sure -- give 09:29:20

Page 701

HIGHLY CONFIDENTIAL

1 Austin time if he wants to interject. 09:29:22

2 I -- my -- I -- I can't confirm. My --
3 completely. My understanding that it has been
4 completely deprecated and no longer exists in any
5 form, but I'm not 100 percent sure of that. 09:29:34

6 Q. Okay. And I read a list of different
7 APIs, and I'm going to read them again and you can
8 tell me if any of them fit the description for
9 what's supposed to be on this list.

10 You mentioned the Groups API and you say 09:29:49
11 it's not a private API, so it wouldn't be on this
12 list.

13 The Pages API?

14 MR. SCHWING: I'm going to object that
15 it's outside of the scope of the deposition. 09:30:00

16 THE DEPONENT: Yeah, I think this is --
17 this going to be complicated, because there's --
18 again, trying to helpful here. A phrase like "the
19 Pages API" could mean many different things. There
20 are -- there are capabilities which modify the 09:30:17
21 behavior of each of these APIs, and there are --
22 they're -- they're affected by permissions in
23 different ways.

24 So I'm just adding that caveat, given the
25 questions you -- 09:30:33

Page 702

HIGHLY CONFIDENTIAL

1 Q. (By Mr. Loeser) Let me try and make this 09:30:35
2 really simple.

3 Facebook has created lists that
4 supposedly show all of the APIs and all of the apps
5 that got access to friend data, and I'm trying to 09:30:44
6 understand if, when Facebook created those lists,
7 it also included the series of APIs that you've
8 testified about that were not -- that didn't have
9 the word "friends" in them but also made friend
10 data available. 09:31:02

11 And is there a list here or can -- well,
12 let's start with that.

13 Is there any list provided by Facebook to
14 date that identifies the apps that had access to
15 these other APIs that we've talked about that 09:31:16
16 emitted friend data?

17 MR. SCHWING: Object to form. Outside
18 the scope.

19 THE DEPONENT: So my understanding is
20 that these responses here are focused on either 09:31:28
21 private APIs that may have emitted friend data or
22 the friend permissions and the apps that had access
23 too friend permissions.

24 Q. (By Mr. Loeser) And so the APIs that
25 emit friend data that don't fall into those two 09:31:44

Page 703

HIGHLY CONFIDENTIAL

1 categories are not covered by the disclosures made 09:31:46
2 by Facebook to date; is that right?

3 MR. SCHWING: Outside the scope of this
4 deposition. Object to the form of the question.

5 THE DEPONENT: I don't know what's 09:32:03
6 been -- what information -- I don't know the
7 totality of the information that's been provided to
8 date, so it's hard -- hard for me to comment on --
9 on that.

10 The -- the information contained here is 09:32:12
11 focused on the -- the friend permissions and the
12 private APIs that may have enabled access to
13 additional friends information.

14 Q. (By Mr. Loeser) Okay. So if the
15 plaintiffs in this case asked Facebook to provide a 09:32:27
16 list of all of the -- any other API that emitted
17 friend data that was not already covered by the
18 list we've just gone through, that is something
19 Facebook could do, right?

20 MR. SCHWING: Outside the scope. Object 09:32:42
21 to the form.

22 THE DEPONENT: I'm not able to comment on
23 what -- on what Facebook can or can't do, given the
24 APIs and the -- the data retention information that
25 exists. So it's hard for me to -- to know and 09:32:57

HIGHLY CONFIDENTIAL

1 answer without whether or not that would be 09:33:00
2 possible.

3 Q. (By Mr. Loeser) Mr. Cross, are all of
4 the -- the apps identified on this list cover or
5 covering pages 377, 460 considered strategic use 09:33:18
6 cases?

7 MR. SCHWING: Outside the scope. Object
8 to form.

9 THE DEPONENT: As we've talked about
10 here, there's -- there's no standard or formal 09:33:37
11 definition for -- for what's considered a strategic
12 use case or a strategic partner. So I -- I -- so
13 your question was -- sorry. Ask -- I think your
14 question was is everything on this list considered
15 a strategic partner; is that -- 09:33:56

16 Sorry. Let me say: Can you ask your
17 question again, please? Thanks.

18 Q. (By Mr. Loeser) Are all the apps
19 identified on this list considered a strategic use
20 case? 09:34:09

21 MR. SCHWING: Same objections.

22 THE DEPONENT: So I -- there's no --
23 there's no standard or formal definition of what's
24 considered a strategic partner or a strategic use
25 case, so I couldn't comment on whether or not 09:34:25

Page 705

HIGHLY CONFIDENTIAL

1 everything on this list is therefore considered 09:34:26
2 strategic -- a strategic -- sorry -- is therefore
3 considered a strategic use case.

4 Q. (By Mr. Loeser) So does Facebook have a
5 record for each one of these apps of the reasons 09:34:35
6 why the app was allowed to continue having access
7 to friend data after 2015?

8 MR. SCHWING: Object to form. Outside
9 the scope.

10 THE DEPONENT: I don't know what Facebook 09:34:54
11 has about each of these applications and -- and why
12 they continue to have access. It's possible there
13 are records for some, but I -- I don't know if
14 there's a record for every single one.

15 Q. (By Mr. Loeser) Okay. We can put that 09:35:42
16 document aside.

17 (Exhibit 408 was marked for
18 identification by the court reporter and is
19 attached hereto.)

20 MR. LOESER: So I'm showing you an 09:36:26
21 exhibit which is Exhibit 408, which a
22 December 18th, 2018 Facebook Newsroom post.

23 What is the Facebook Newsroom?

24 THE DEPONENT: The Facebook Newsroom is
25 Facebook's corporate blog. 09:36:44

Page 706

HIGHLY CONFIDENTIAL

1 Q. (By Mr. Loeser) And is that a place 09:36:49
2 where Facebook employees provide information to
3 each other about Facebook products?

4 A. No, I wouldn't characterize it as a -- a
5 way of Facebook employees providing information to 09:37:03
6 each other about Facebook's products.

7 Q. Okay. What is the purpose of the
8 Facebook Newsroom?

9 A. My understanding is it's a public blog
10 that Facebook publishes blog posts publicly. 09:37:15

11 Q. And this blog post by -- by KP is
12 captioned or titled "Let's clear up a few things
13 about Facebook partners," right?

14 A. I see that.

15 Q. And you see it's written by KP, director 09:37:38
16 of developer platforms and programs?

17 Do you see that?

18 A. I see that, yeah.

19 Q. So if we go down the blog a little bit.

20 KP writes: "Today, we're facing 09:37:48
21 questions about whether Facebook gave large tech
22 companies access to people's information and, if
23 so, why we did this."

24 Do you see that?

25 A. I see that. 09:38:00

HIGHLY CONFIDENTIAL

1 Q. And we've talked about some of the 09:38:02
2 reasons why Facebook did this. And KP writes: "To
3 put it simply, this work was about helping people
4 do two things. First, people could access their
5 Facebook accounts or specific Facebook features on 09:38:16
6 devices and platforms built by other companies like
7 Apple, Amazon, BlackBerry, and Yahoo. These are
8 known as integration partners. Second, people
9 could have more social experiences -- like seeing
10 recommendations from their Facebook friends -- on 09:38:31
11 other popular apps and websites like Netflix, the
12 New York Times, Pandora, and Spotify."

13 Right?

14 A. I see that, yeah.

15 Q. Now, that's not a complete list of the 09:38:44
16 types of partners that were given access to
17 information by Facebook, is it?

18 MR. SCHWING: Object to the scope.
19 Object to form.

20 THE DEPONENT: There are a -- a small 09:39:01
21 number of companies listed here or integrations
22 listed here. I wouldn't characterize that as a
23 full list.

24 Q. (By Mr. Loeser) What are the -- other
25 types that are missing from this list? 09:39:14

Page 708

HIGHLY CONFIDENTIAL

1 MR. SCHWING: Same objections. 09:39:17

2 THE DEPONENT: When you say "other types
3 missing," like I'm not sure what you mean.

4 Q. (By Mr. Loeser) Well, let's go back to
5 interrogatory -- the interrogatories, and if you 09:39:33
6 look at page 372 and 373, there was a description
7 of the different types of partners that were given
8 access to friend data after the transition.

9 And you'll recall under the business
10 integrations category, there was a series of 09:40:08
11 descriptions, including merchants, job, media
12 integrations, search integration, beta test APIs,
13 and so on.

14 And -- you see all those different types
15 of partners? 09:40:31

16 A. I see a list of --

17 I'm sorry.

18 MR. SCHWING: Sorry. Outside the scope.

19 Go ahead.

20 THE DEPONENT: So I see a list of 09:40:39
21 categorizations used in -- in the rog responses.

22 Q. (By Mr. Loeser) Okay. And so can you
23 tell which of those are not included in KP's public
24 posts about partners with whom Facebook shared
25 information? 09:41:00

Page 709

HIGHLY CONFIDENTIAL

1 MR. SCHWING: Outside of the scope. 09:41:01

2 Object to form.

3 THE DEPONENT: Like -- yeah, I -- I don't

4 think I can give a authoritative explanation of --

5 of the mapping between these two things. I'm not 09:41:16

6 sure it's intended to be an authoritative mapping.

7 Q. (By Mr. Loeser) So KP was communicating

8 publicly about -- to explain to people whether

9 Facebook gave large tech companies access to

10 people's information, and if so, why, right? 09:41:37

11 MR. SCHWING: Object to outside the

12 scope. Object to form.

13 THE DEPONENT: So that's the -- those are

14 the words written in the blog post.

15 Q. (By Mr. Loeser) Okay. So he explained 09:41:48

16 why information was given to some partners but

17 not -- he didn't provide a complete description of

18 the partners to whom information was given by

19 Facebook, right?

20 MR. SCHWING: Same objections. 09:41:59

21 THE DEPONENT: There are -- he's

22 listed -- you know, given four and four example

23 here, and as we reviewed on the -- on the list,

24 there are -- there are other examples.

25 Q. (By Mr. Loeser) He didn't identify any 09:42:19

Page 710

HIGHLY CONFIDENTIAL

1 of the -- what are referred to as "business 09:42:20
2 integrations" in the interrogatory responses,
3 right?

4 MR. SCHWING: Outside of the scope.

5 Object to form. 09:42:27

6 THE DEPONENT: As I said, I'm not sure
7 what -- what "business integrations" is
8 specifically referring to.

9 Q. (By Mr. Loeser) Okay. Well the
10 interrogatory is pretty specific. 09:42:40

11 Did he include merchants in this public
12 post about partners with whom Facebook shared this
13 information?

14 MR. SCHWING: Same objections.

15 THE DEPONENT: The examples that he gives 09:42:52
16 here do not include merchants.

17 Q. (By Mr. Loeser) Do they include job
18 integrations?

19 MR. SCHWING: Same objection.

20 THE DEPONENT: The example -- 09:43:02
21 Sorry, Austin.

22 MR. SCHWING: Sorry. I know it's getting
23 late.

24 Same objections.

25 THE DEPONENT: I don't see him give those 09:43:10

Page 711

HIGHLY CONFIDENTIAL

1 examples in this blog post, no. 09:43:12

2 Q. (By Mr. Loeser) Does he include media
3 integrations?

4 MR. SCHWING: Same objections.

5 THE DEPONENT: I would categorize "The 09:43:22
6 New York Times" as a media publication.

7 Q. (By Mr. Loeser) Okay. And what about
8 speciality consumer experiences such as games? Is
9 that on here?

10 A. The examples in the blog post do not 09:43:42
11 include anything I would -- I would consider a
12 game.

13 Q. Let's go to the next page.

14 KP writes: "To be clear: None of these
15 partnerships or features gave companies access to 09:43:55
16 information without people's permission, nor do
17 they violate our 2012 settlement with the FTC."

18 Do you see that?

19 A. I want to make sure I find that passage
20 in the blog. Hang on. Give me a second. 09:44:12

21 I see it.

22 Q. Okay. So a Facebook user who used the
23 service or feature gave the partner or app
24 permission, right?

25 MR. SCHWING: Outside of the scope. 09:44:27

Page 712

HIGHLY CONFIDENTIAL

1 Object to form. 09:44:28

2 THE DEPONENT: My understanding is that
3 these -- the examples given here for -- for an
4 app -- for the apps to have access to information
5 through the user, the user would have to give 09:44:47
6 permission.

7 Q. (By Mr. Loeser) Okay. But these
8 partners and apps had access to friend-sharing
9 APIs; is that right?

10 A. I can't be 100 percent confident as to 09:44:59
11 which APIs and so on that these -- these apps were
12 using. But yes, some of would have access to -- to
13 friend information.

14 Q. And, sir, these -- those apps that did
15 have access to friend information could obtain 09:45:17
16 friend data from people who did not themselves use
17 the apps, right?

18 (Court Reporter asks clarification.)

19 Q. (By Mr. Loeser) The apps and partners
20 that could obtain friend data -- sorry. 09:45:33

21 Apps and partners that obtained friend
22 data could obtain this friend data from people who
23 do not themselves use the app or partners, right?

24 MR. SCHWING: Object to form.

25 THE DEPONENT: Exactly how these apps 09:45:55

Page 713

HIGHLY CONFIDENTIAL

1 behaved changed over time, and so I -- I would need 09:45:56
2 to give a -- understand the integrations more --
3 more concretely and understand which time we're --
4 we're talking about here.

5 Q. (By Mr. Loeser) What was the time period 09:46:15
6 in which apps could obtain friend data from users?

7 A. My understanding is that the -- the
8 friend permissions were removed in around
9 April 2018.

10 Q. So up until that time, apps that had 09:46:34
11 access to friend permissions could obtain that
12 information from users that did not themselves use
13 the app, right?

14 MR. SCHWING: Object to form.

15 THE DEPONENT: My understanding is that 09:46:52
16 the -- the way some of these integrations worked
17 allowed the integration or the app to access
18 information about the logged-in user's friends.

19 MR. SCHWING: I just want to note that
20 we're five minutes past our designated stopping 09:47:09
21 time of 10:00 p.m. London time. I think there will
22 be additional questioning, an additional session of
23 the depo. I think this would be a good moment to
24 stop.

25 MR. LOESER: Well, I'm in the middle of 09:47:26

HIGHLY CONFIDENTIAL

1 questioning about this document, and I think 09:47:27
2 it's -- probably make sense to finish that
3 questioning. And then I'm quite close to the end.
4 We can either stop after this document or if
5 Mr. Cross wants to power through two more 09:47:36
6 documents, three more documents, that will be all
7 he'll hear from me.
8 But why don't we finish with this
9 document and then go off the record to decide
10 whether we have the ability to do a bit more or if 09:47:47
11 we should wrap it up today.
12 Is that okay, Mr. Cross?
13 THE DEPONENT: I'm comfortable finishing
14 this document, but I think we should probably break
15 after that. 09:48:02
16 Q. (By Mr. Loeser) So when KP writes "none
17 of these partnerships or features gave companies
18 access to information without people's permission,"
19 that wasn't actually true, was it?
20 MR. SCHWING: Object to form. It's 09:48:13
21 outside the scope.
22 THE DEPONENT: I -- I can't comment on
23 the -- on the -- the -- what was meant by -- in
24 this blog post or how this blog post was formulated
25 and what was meant by it. 09:48:29

Page 715

HIGHLY CONFIDENTIAL

1 Q. (By Mr. Loeser) What -- during the time 09:48:35
2 that apps and partnerships could obtain friend data
3 via friend permissions, they didn't need permission
4 from the friends of the user in order to obtain
5 that permission, right? 09:48:50

6 MR. SCHWING: Object. It's beyond the
7 scope. Object to the form of the question.

8 THE DEPONENT: So, again, my
9 understanding here is that integration partners had
10 to get authorization from -- from the people who 09:49:11
11 use the integration, and that's what's meant by
12 "permission."

13 Q. (By Mr. Loeser) Okay. They didn't have
14 to get authorization from the friends of the people
15 who use the -- the integration, right? 09:49:25

16 MR. SCHWING: Same objections.

17 THE DEPONENT: In the past, my
18 understanding is that a user could -- would log in
19 to the application and give the application
20 permission, and then the app would be able to 09:49:45
21 access information about that user in there and
22 some of their friends.

23 Q. (By Mr. Loeser) And it could get the
24 information about some of their friends without the
25 authorization from the friends, right? 09:49:58

HIGHLY CONFIDENTIAL

1 MR. SCHWING: Object to form. 09:50:00

2 THE DEPONENT: So I want to be --

3 you know, I'm going off my understanding of how
4 these -- how some of those integrations worked in
5 the past. 09:50:12

6 The user had to log in to an application
7 for the app to then access information about that
8 user and their friends.

9 Q. (By Mr. Loeser) Right. And I've asked
10 you just a pretty simple question about the user's 09:50:21
11 friends.

12 When that happened, did app could get
13 information about the user who installed the app
14 and the user's friends without getting
15 authorization from the friends, right? 09:50:33

16 MR. SCHWING: Object to the form.
17 Outside the scope.

18 THE DEPONENT: So my understanding is
19 that the app had access to information about the
20 user's friends without those -- all of those 09:50:45
21 friends necessarily having used the application
22 themselves.

23 Q. (By Mr. Loeser) Without those friends
24 having given the app permission to access their
25 data, correct? 09:50:59

Page 717

HIGHLY CONFIDENTIAL

1 MR. SCHWING: Object to the form. 09:51:02

2 Outside the scope. Asked and answered.

3 THE DEPONENT: Yeah, so I feel like

4 the -- we're reviewing here a blog post that was

5 written that I didn't -- you know, I wasn't super 09:51:16

6 closely involved in, and I haven't been prepared on

7 the exact determinations that were -- that were

8 used to create this blog post.

9 So like -- again, from my understanding

10 as a -- as -- as somebody who's worked in this area 09:51:32

11 and in past and spoken to many people involved is

12 that, yes, the way these applications worked was

13 that -- or some of these applications worked is

14 that some of them allowed the app to access

15 information about the logged-in user's friends even 09:51:50

16 though the logged-in user -- even though all of

17 those friends haven't necessarily used or

18 authorized the application.

19 MR. LOESER: Why don't we go off the

20 record. 09:52:05

21 THE VIDEOGRAPHER: We're off the record.

22 It's 10:10 p.m.

23 (Recess taken.)

24 THE VIDEOGRAPHER: We're back on record

25 it's 10:57 p.m. 10:38:17

Page 718

HIGHLY CONFIDENTIAL

1 MR. SCHWING: All right. I note for the 10:38:20
2 record that the parties have agreed that the
3 deposition testimony will be treated as "Highly
4 Confidential." The witness will review the
5 testimony and provide any corrections, and we will 10:38:32
6 also be reviewing the testimony given here today to
7 make further distinctions about the confidential
8 treatment of the materials.

9 SPECIAL MASTER GARRIE: So noted.

10 Counsel Loeser, any comment before we go 10:38:47
11 off the record?

12 MR. LOESER: No. Just obviously we
13 appreciate the designation. I don't think we agree
14 with the designations, and understand you will be
15 reviewing it for distinctions that may come up with 10:38:57
16 different portions of the testimony.

17 MR. SCHWING: Thank you.

18 SPECIAL MASTER GARRIE: So noted for the
19 record.

20 We can go off the record. 10:39:07

21 THE VIDEOGRAPHER: Okay. We are off the
22 record. It's 10:57 p.m.

23 (TIME NOTED: 10:57 p.m.)

24

25 ---o0o--- 10:39:12

HIGHLY CONFIDENTIAL

1 I, SIMON CROSS, do hereby declare under
2 penalty of perjury that I have read the foregoing
3 transcript; that I have made any corrections as
4 appear notes; that my testimony as contained
5 herein, as corrected, is true and correct.

6 Executed this ____ day of _____,
7 2022, at _____, _____.

8
9
10
11 _____
SIMON CROSS

12
13
14
15
16
17
18
19
20
21
22
23
24
25
Page 720

HIGHLY CONFIDENTIAL

1 I, Rebecca L. Romano, a Registered
2 Professional Reporter, Certified Shorthand
3 Reporter, Certified Court Reporter, do hereby
4 certify:

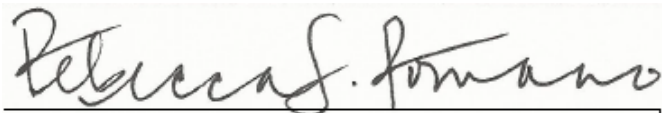
5 That the foregoing proceedings were taken
6 before me remotely at the time and place herein set
7 forth; that any deponents in the foregoing
8 proceedings, prior to testifying, were administered
9 an oath; that a record of the proceedings was made
10 by me using machine shorthand which was thereafter
11 transcribed under my direction; that the foregoing
12 transcript is true record of the testimony given.

13 Further, that if the foregoing pertains to the
14 original transcript of a deposition in a Federal
15 Case, before completion of the proceedings, review
16 of the transcript [X] was [] was not requested.

17 I further certify I am neither financially
18 interested in the action nor a relative or employee
19 of any attorney or any party to this action.

20 IN WITNESS WHEREOF, I have this date
21 subscribed my name.

22
23 Dated: June 8, 2022

A handwritten signature in cursive script, reading "Rebecca L. Romano", written in black ink on a light-colored background.

Rebecca L. Romano, RPR, CCR

24
25 CSR. No 12546

SIMON CROSS

si@fb.com

June 8, 2022

RE: FACEBOOK, INC., CONSUMER USER PROFILE LITIGATION

JUNE 6, 2022, SIMON CROSS, VOLUME III, JOB NO. 5265189

The above-referenced transcript has been
completed by Veritext Legal Solutions and
review of the transcript is being handled as follows:

___ Per CA State Code (CCP 2025.520 (a)-(e)) - Contact Veritext
to schedule a time to review the original transcript at
a Veritext office.

___ Per CA State Code (CCP 2025.520 (a)-(e)) - Locked .PDF
Transcript - The witness should review the transcript and
make any necessary corrections on the errata pages included
below, notating the page and line number of the corrections.
The witness should then sign and date the errata and penalty
of perjury pages and return the completed pages to all
appearing counsel within the period of time determined at
the deposition or provided by the Code of Civil Procedure.

___ Waiving the CA Code of Civil Procedure per Stipulation of
Counsel - Original transcript to be released for signature
as determined at the deposition.

___ Signature Waived - Reading & Signature was waived at the
time of the deposition.

Page 722

HIGHLY CONFIDENTIAL

1 _X_Federal R&S Requested (FRCP 30(e)(1)(B)) - Locked .PDF

2 Transcript - The witness should review the transcript and
3 make any necessary corrections on the errata pages included
4 below, notating the page and line number of the corrections.
5 The witness should then sign and date the errata and penalty
6 of perjury pages and return the completed pages to all
7 appearing counsel within the period of time determined at
8 the deposition or provided by the Federal Rules.

9 __ Federal R&S Not Requested - Reading & Signature was not
10 requested before the completion of the deposition.

11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
Page 723

HIGHLY CONFIDENTIAL

RE: FACEBOOK, INC., CONSUMER USER PROFILE LITIGATION
SIMON CROSS, VOLUME III, JOB NO. 5265189

E R R A T A S H E E T

PAGE_____ LINE_____ CHANGE_____

REASON_____

PAGE_____ LINE_____ CHANGE_____

REASON_____

PAGE_____ LINE_____ CHANGE_____

REASON_____

PAGE_____ LINE_____ CHANGE_____

REASON_____

PAGE_____ LINE_____ CHANGE_____

REASON_____

PAGE_____ LINE_____ CHANGE_____

REASON_____

WITNESS

Date

HIGHLY CONFIDENTIAL

[& - 3000]

| | | | |
|----------------------------|--------------------------|--------------------------|--------------------------|
| & | 12/18/2018 504:4 | 2,300 619:6,12 | 2019 504:14 |
| & 496:14 497:19 | 1201 498:10 | 629:13,15 | 510:12 634:19 |
| 499:5 500:5 501:5 | 12546 496:21 | 2.0 531:19 | 636:21 657:4 |
| 503:15 506:20,24 | 721:25 | 20 510:11 | 2020 679:18 680:1 |
| 542:17 543:21 | 128 505:15 668:20 | 20-0466 496:22 | 680:16 681:9 |
| 722:23 723:9 | 670:24 | 2001 500:18 | 682:16 683:7,10 |
| 0 | 12th 499:11 | 2009-11-13 688:15 | 683:12,24 697:7 |
| 0000582988 | 14 572:3 637:7 | 2011 529:13 | 697:14,18 |
| 503:23 | 643:14 670:22 | 2012 529:13 | 2021 668:22 |
| 0000582989 | 671:1 | 712:17 | 2022 496:16 |
| 503:24 | 15 565:2 572:3 | 2013 503:11 515:9 | 497:18 506:1,7 |
| 00199890 503:13 | 676:21 678:5,10 | 541:12 542:13 | 720:7 721:23 |
| 00199891 503:18 | 686:17 687:19,25 | 543:9 548:24 | 722:3,5 |
| 00199898 503:19 | 699:5 | 549:18 550:7 | 2025.520 722:9,12 |
| 01789112 505:7 | 16 642:5 | 551:7,16,18 | 206 498:13 |
| 01789115 505:8 | 1600 499:12 | 553:21 554:18 | 21 644:2 |
| 02088254 504:16 | 17 637:7 642:3 | 555:21 566:3 | 2100 500:19 |
| 02088257 504:19 | 645:1 649:22 | 572:3 581:3 624:6 | 213 502:10 |
| 02088279 504:20 | 18 496:4 497:4 | 2014 515:9 531:24 | 214 500:21 |
| 02843 496:4 497:4 | 505:5 637:7 | 536:25 544:5 | 22nd 660:4 |
| 02906764 504:6 | 1801 501:8 | 564:16 565:1 | 23 660:12 |
| 02906766 504:11 | 1881 501:16 | 581:17 582:10,12 | 253-9706 502:10 |
| 02906770 504:12 | 18th 602:18 | 582:15 663:20 | 27 504:14 684:11 |
| 1 | 706:22 | 664:20 665:2 | 691:2 699:6 |
| 1 560:23,25 561:6 | 1a 553:25 556:8 | 696:15 | 27th 634:19 |
| 577:11 579:20 | 557:19 568:14 | 2015 549:18 | 2843 496:3 497:3 |
| 585:16 604:3,13 | 572:9,14,16,17 | 564:17 604:19 | 29 505:13 659:25 |
| 604:14 642:6 | 1b 553:25 556:8 | 623:24 679:14 | 660:2 |
| 685:17 686:1 | 570:5 | 685:11,18,20,22 | 298-5735 501:11 |
| 723:1 | 1st 581:17 582:10 | 685:25 686:6,11 | 3 |
| 10 696:18 | 621:6 | 686:12,14,15 | 3 506:9 556:8 |
| 100 562:8 670:15 | 2 | 687:20 706:7 | 562:9 604:6 |
| 702:5 713:10 | 2 531:23 532:13 | 2016 685:14 | 606:25 608:23 |
| 10:00 714:21 | 545:7 554:2 556:8 | 2018 505:5 511:6 | 3.0 531:13,14,18 |
| 10:10 718:22 | 561:17 565:22 | 513:13 602:18 | 532:3,6 536:6 |
| 10:57 718:25 | 571:13 579:20 | 610:16 621:6 | 30 496:12 503:11 |
| 719:22,23 | 585:16 604:4 | 660:4,12 689:9 | 508:8 535:19 |
| 11th 668:22 | 605:21 608:24 | 690:20 706:22 | 595:14 598:7 |
| 12 689:25 | 609:2 642:15 | 714:9 | 664:10 723:1 |
| | 695:23 | 2018-6-22 688:18 | 3000 500:10 |

HIGHLY CONFIDENTIAL

[303 - access]

| | | | |
|---|--|---|--|
| 303 501:11 30th 541:12 542:13 582:15 3200 498:11 32nd 502:8 335 669:24 3491 496:23 355 684:10 358 684:25 360 686:22 688:11 699:3 372 690:24 691:20 692:3 700:10 709:6 373 709:6 377 695:16,24 699:3 705:5 393-8200 500:12 3:36 497:18 506:2 506:6 | 445-4003 499:14 460 668:17 695:16 705:5 496 496:25 4:02 526:6 4:12 526:9 4:25 536:19 4:29 536:22 | 63 670:17 671:1 672:24 634 504:14 636 504:18 64 676:14 65 676:13 677:1 650 501:18 66 677:1 660 505:13 668 505:15 67 677:2 68 678:4 698-3204 500:21 6:52 634:9 6th 506:6 | 9 9 639:22 90 643:20 90013 502:9 94105-0921 500:11 94304-1211 501:17 94607 499:13 98101 498:12 9:04 672:21 |
| | 5 | | a |
| | 5 563:23 637:7,11 5/1/2014 503:21 508 503:5 5265189 496:24 722:5 724:2 53 602:11 540 644:2 541 503:11 543 503:15 555 499:11 500:9 502:7 581 503:21 584 644:2 599 505:17 5:12 569:17 5:25 569:20 5th 502:7 | 7 7 508:11 534:2,12 565:3 607:9 624:23 640:16 662:21 664:17 706 505:4 72 678:6,8 724 496:25 7321 721:24 75201 500:20 77 670:20 671:2,5 78 678:9 7:57 634:12 | abandoned 550:12 550:15 abilities 554:6 ability 511:25 527:20 529:16 530:3 552:22 553:2,3,5 626:14 698:19 715:10 able 540:1 541:24 559:23 594:6 613:23 614:25 632:11 633:8 638:10 643:3 648:8 657:15,19 665:11,14 666:1,5 667:18 668:4 673:21 674:9 682:14 688:5 699:14 704:22 716:20 accelerate 604:6 access 527:20 528:13,14 529:4 531:12 532:5,17 532:24 533:6 536:4,24 537:8 539:4,15,19 540:9 541:25 546:7 |
| 4 | 6 | 8 | |
| 4 556:8 563:9 609:24 400 505:17 599:15 401 503:11 541:5 542:1 402 503:15 543:4 543:19 403 503:21 581:18 404 504:4 602:12 602:25 405 504:8 616:4,5 406 504:14 634:13 634:25 635:3 407 504:18 635:23 636:4 642:5 408 505:4 706:17 706:21 415 499:14 500:12 4200 501:9 | 6 496:12,16 497:18 506:1 508:8,11 534:2,12 535:19 564:22 598:7 607:9 624:23 637:7 640:16 662:20 664:10,17 722:5 60 670:21 671:1 602 504:4 616 504:8 623-1900 498:13 | 8 561:6 565:21 721:23 722:3 80202-2642 501:10 827 496:22 849-5206 501:18 87 685:2 8:48 672:18 | |

HIGHLY CONFIDENTIAL

[access - announced]

| | | | |
|--|---|--|--|
| 551:25 556:1 557:13 559:15 573:9,15 575:13 575:19 576:19,20 581:9 583:4 592:18 593:5 600:15 602:1,6 604:16,21 605:13 605:23 606:25 608:20,24 609:4 610:2 620:22 622:12,14 624:16 625:14 626:15 627:6 629:19 630:8 633:22 653:9 655:20 663:21 664:19 665:1 670:5,6 676:21,22 677:18 677:21,25 678:14 678:23 684:13,14 684:15 685:5,8,19 687:11 688:18,21 689:8,24 690:20 691:7 692:22 695:18 696:9 697:10 699:6 700:2,14 703:5,14 703:22 704:12 706:6,12 707:22 708:4,16 709:8 710:9 712:15 713:4,8,12,15 714:11,17 715:18 716:21 717:7,19 717:24 718:14 accessed 581:11 610:11 679:9 696:12 697:17 accessible 526:2 | accessing 563:17 563:18 account 522:19 533:9 540:17 accounts 708:5 accurate 512:23 515:12 516:2 525:15 527:4 532:10 586:18 601:8 615:6,7,13 651:1 accurately 516:13 557:6,9 586:22 595:4 671:25 672:1 696:20,21 achieve 549:5 550:4 acting 588:7 action 609:3,8 663:20 721:18,19 actions 496:7 497:7 529:16 552:23 608:17 active 584:8 605:8 651:22 676:19 678:22 activision 688:11 activity 530:3 563:19 actual 534:12 564:13 ad 523:11 562:19 562:22 adaniel 498:15 adavis 499:17 add 514:7 564:22 674:23 677:16 added 563:16 565:1 581:11 586:9 | adding 702:24 additional 508:19 509:4,6,12,13 526:13 530:6 532:23 585:20 632:12 704:13 714:22,22 address 534:15 535:15,22 addresses 620:23 adele 498:7 506:17 adequate 612:13 administered 508:2 721:8 ads 523:22 524:2,8 advance 600:7 636:5 660:25 advertising 523:16 affect 559:10 afraid 635:8,19,22 640:23 641:5 643:3 646:4 665:21 666:14 673:14 676:11 689:6,16 afternoon 508:7 aggregated 681:5 ago 508:10,19 545:18 546:23 547:12 551:23 573:21 585:18 589:7 591:21 agree 719:13 agreed 526:14 719:2 ahead 521:9 529:25 530:19 537:25 539:9 542:7,9 585:10 599:10 601:12,16 603:10 604:14 | 630:10 632:9 638:23 639:15 657:17 662:23 700:25 709:19 aiding 599:7 ali 509:7 allow 523:1 524:14,15 532:17 537:7 563:17 589:11 617:11 662:5 664:19 665:1,15 666:6 689:7 allowed 592:19 593:6 600:16 605:9 617:9 670:5 678:16 679:2 691:8 695:20 697:15 700:4,16 706:6 714:17 718:14 allowing 539:3 655:20 685:8 allows 684:4 alto 501:17 altogether 555:15 amazon 708:7 ambiguous 619:21 620:8 633:15 amended 668:11 amount 531:6 570:18 590:18 680:21 analysis 559:8,9 561:14,15 619:6 analytica 622:5 639:19 661:6,8,11 angeles 502:9 anne 499:8 506:25 announced 582:14 |
|--|---|--|--|

HIGHLY CONFIDENTIAL

[announcement - app]

| | | | |
|--|--|--|---|
| announcement 582:12,17 621:4 | 678:3 681:25 686:8 688:6 689:6 689:16 690:14 695:8 705:1 | 653:10,23 654:23 656:10,20 657:3,5 658:15,16 659:6 679:21 680:7,20 684:7 685:9,11,17 686:1 691:11 694:2,3 695:23 697:9,16 699:7,8,8 699:8 700:19,23 701:4,5,7,9,12,14 701:17,21 702:10 702:11,13,19 704:16 | 641:3,7 642:6,11 642:23 643:5,10 644:2 647:22 655:3,10,12,20 657:22,23 658:1,2 658:9 659:4 670:5 677:19,21 678:13 678:16,23 679:1 679:20,21,24 680:4 682:18 683:8,9,11,25 691:8 692:14 693:4,16,22,24 695:19 697:16 699:16 700:3,15 701:2,3 702:7,21 703:4,7,15,21,24 704:12,24 709:12 713:9,11 |
| answer 512:23 513:22 514:11 518:8 520:3 525:15 527:4 529:25 530:21 532:10 533:1,8,17 533:20 534:18,22 534:25 535:6,18 537:4,24 538:1 539:22 540:15 545:2 546:10 563:14 575:2 576:8,13,13 578:9 578:10,14,15,16 579:1 587:12 592:3 595:4,7,17 598:14 601:8,16 601:18 606:5,11 606:22,23 607:11 608:9 612:8,18,21 613:3,24 614:12 615:7,10,12 616:1 620:3 621:25 623:3,5 624:25 625:4,22 627:1 629:7,7,23 632:9 633:17 639:17 640:18,23 641:5 642:10 643:1,3 644:14 646:5 648:11 651:1 652:24 654:19 655:7 657:12,15 657:17,19 659:14 659:22 664:12 665:6,11,23 666:1 666:14 667:8,18 668:4 672:12 675:5 677:22 | answered 521:8 595:19 718:2 answering 573:18 576:22 577:16 580:5 anticipated 558:20 anymore 554:11 607:22 ap 685:20 api 504:5 510:8,15 510:18,19,20,20 510:21 512:25 514:5 531:19,23 544:5 553:11 559:10 574:5,23 575:15 577:10 579:20 582:22 585:16 590:9 602:19,21,22 604:3,17 609:18 610:22,22 611:13 612:14 613:5,10 613:18 617:9,19 618:8 619:6,12,13 619:16,21 620:16 620:20 621:3,4,8,9 621:11 622:12,13 622:14 623:19 624:15,16,20 625:17,18 626:1,3 626:6,9,15,21 627:14 629:14,17 629:19 630:8 632:23 633:8,15 637:23 638:4,7 639:5,22 648:5,17 649:14 650:9 | apis 504:10 509:21 511:10,17,21,23 512:2,6,9,10,13,21 512:25,25 513:3,8 513:12,15,16,23 514:3,3 527:20 529:12 532:11,13 537:9 539:4,20,20 545:4 552:1,18,18 559:15,25 560:20 573:22,25 574:7 574:21 575:13,14 575:25 576:2,24 577:6 604:17 605:24 606:15,18 606:25 607:7,16 608:20,24 609:4,9 609:25 610:2,11 610:12,14 611:2,7 611:19 612:25 614:1 616:19,22 617:1,8,20,22,23 617:25 618:12 620:7,22 621:13 621:16 622:8 623:11 624:11 637:14,22 638:8 639:3 640:3,7,24 | apologies 569:23 575:3 676:8 app 517:10 525:21 526:1 529:17 530:4 540:2,8,9 547:22,23 552:10 553:4,7 555:2,12 557:5 565:9 581:11 584:18 601:24 602:5 617:13 620:4 623:21 624:7,16 624:20 625:5,12 626:9,19,21 627:4 627:6,14 633:21 633:23 653:9,15 674:12 685:5 687:5,8,23 688:15 692:20 693:2 706:6 712:23 713:4,23 714:13 714:17 716:20 |

HIGHLY CONFIDENTIAL

[app - associated]

| | | | |
|--|---|--|--|
| 717:7,12,13,19,24 718:14 app's 685:6 appear 620:10 631:18 650:4 720:4 appearances 498:1 499:1 500:1 501:1 502:1 appearing 498:2 499:2 500:2 501:2 502:2 722:18 723:7 appears 515:9 581:22 582:23 608:18 687:25 apple 708:7 application 511:8 513:18 524:3,5 592:17,19 593:4,6 600:14,15 602:8 619:7,13,16 623:20 625:9 626:14 629:14 632:23 633:9 679:21 691:9 695:20 696:1 700:4,16 716:19 716:19 717:6,21 718:18 applications 523:23 524:15 545:24 577:13 583:21 618:11 626:7 675:11 680:7 681:15 684:5 685:20,21 690:21 691:6 695:18 697:20 700:2,14 706:11 718:12,13 | applied 563:2 690:11 apply 570:10,23 571:1,9 700:22 appreciate 574:24 578:7,11 594:18 595:13 598:5,10 598:17 599:13 603:22 627:9 719:13 approach 587:15 594:7 628:11 appropriate 534:11 560:4,10 586:5 594:7 608:15 617:15 627:22 639:1 672:8 appropriately 545:23 546:5,18 568:17 574:1,3 579:6 618:1,13 approved 671:24 apps 528:25 529:13 538:3 545:24 553:3 555:25 557:13 558:1 560:17 561:10,15 562:4 563:9,13,16 564:22 565:1,3,11 567:10 568:14,21 570:10,23 571:1,9 572:18 573:23 574:17 575:8,19 583:10,16 584:6 586:9 592:8 605:5 608:19 610:16 649:10 663:21 665:13,15 666:4,6 670:6 673:5 | 678:21 679:8,9,17 681:19,22 683:7 685:4 687:19,25 689:9 690:4 698:13,20 699:3 703:4,14,22 705:4 705:18 706:5 708:11 713:4,8,11 713:14,17,19,21 713:25 714:6,10 716:2 april 513:13 531:24 544:5 582:15 685:20 714:9 archibong 541:3 541:12 602:17 area 523:16 525:25 555:23 560:9 575:16 577:11 601:20 618:9 668:2 684:19 718:10 argue 615:23 argumentative 575:4 arrive 569:23 arrow 553:25 art 671:9 article 556:5 articulate 551:8 articulated 658:6 658:7 artifact 582:9 aschwing 500:13 aside 592:11 706:16 asked 521:8 534:17,21 535:4 574:25 578:8 593:18 634:2 | 641:11 665:7 690:15 704:15 717:9 718:2 asking 516:6 526:19 533:11 534:2,7,9 540:13 576:7 591:19 592:5 593:3 594:24 595:14,24 596:1,4,4,10 598:24 599:25 601:11 613:24 615:14 633:3 634:4 656:16 662:21 664:10 683:20,23 asks 592:17 593:4 600:14 684:11 713:18 asserted 676:17 asserting 549:11 611:24 assess 561:15 563:9,13 609:9 assessed 538:21 637:15 639:22 653:23 654:24 657:22 assessing 609:24 assessment 530:24 538:7,23 539:12 640:2 643:19 657:21 assigned 570:15 associate 502:16 698:21 associated 541:22 593:11 611:7 635:6 653:9 657:5 658:16 678:19,21 678:22 691:7,10 |
|--|---|--|--|

HIGHLY CONFIDENTIAL

[associated - best]

| | | | |
|---|---|---|--|
| 691:10 695:19,21 695:21 696:6 700:3,5,5,15,17,17 assume 516:12 651:10 assumed 558:12 attached 541:7 543:3,6 581:20 602:14 604:2 616:7 634:15 635:25 636:2,5 706:19 attachment 542:16,20 602:20 603:9 634:20 attempt 617:5 624:10 641:25 642:11 644:24 682:2 attempted 549:11 attempting 550:3 550:4 attorney 500:17 501:15 606:3 721:19 attorneys 498:9 499:10 500:8 501:7 attribution 653:6 653:21 654:6 670:12 audit 621:13,18 623:20 629:18 630:7 643:5,10 audited 637:14 auditing 573:12 579:18 580:18,20 audits 630:14 august 515:9 auld 499:5 506:24 | austin 500:6 506:19 517:18 521:7 639:11 648:22 682:23 702:1 711:21 author 549:10 555:24 570:19 573:19 591:8 614:14 619:9 625:1 644:19,23 650:5 authoring 551:22 authoritative 613:24 614:12 629:7 633:17 710:4,6 authorization 716:10,14,25 717:15 authorized 513:17 718:18 authors 646:23 654:21 655:25 699:23 available 530:16 545:5,6 552:2 553:18 554:10,11 554:24,25 555:4,5 555:8,11,17 573:23 574:8,17 574:21,22 575:8 575:13,15 576:25 577:12,20 638:11 639:6 679:8 685:9 693:5,17 694:3 701:10,13,15 703:10 avenue 498:10 500:18 avoid 671:15 | aware 527:16 580:14 618:10 619:14 621:25 632:19 638:17 643:9 646:2 656:7 681:23 b b 496:12 502:5 503:8 504:1 505:1 508:8 535:19 598:7 664:10 723:1 back 514:21 521:16 523:2,8 524:16 526:8 528:25 529:6,17 530:4 535:11 536:21 569:19 572:15 579:15 585:11 589:18 593:24 594:10 603:25 632:22 634:11 642:4 644:25 649:22 670:21,24 672:20 672:23 700:10 709:4 718:24 bad 534:20 base 524:6 610:21 based 536:12 577:3 608:17 639:23 640:3 642:10 650:4 653:22 658:7 659:2 687:24 basically 633:7 basis 546:20,22 562:23 563:7 bates 542:5 635:4 635:5 | bear 669:12 began 685:19 beginning 506:14 685:20 begun 582:22 behalf 497:16 507:8 514:5 578:14 588:7 598:14 607:11 612:18,21 624:25 640:18 655:7 666:1,15,22 667:8 667:19 668:4 695:9 behaved 714:1 behavior 702:21 believe 509:19 517:6 524:4 534:10 591:24 615:16,18 661:13 665:12 666:3 667:2 believed 585:1 612:13 believes 529:5 600:2 611:18,24 benefit 529:18,21 530:8 benefits 522:22 529:20 best 527:3 529:10 533:20 534:22,22 534:25 535:7,18 545:2,16,18 552:16 573:21 576:13,14 579:1 586:20 589:7 605:1 606:22,23 615:6 620:2,3 623:5 625:4,25 636:8 638:6 |
|---|---|---|--|

HIGHLY CONFIDENTIAL

[best - captures]

| | | | |
|---|---|--|--|
| 682:15 beta 693:24 709:12 better 514:19 601:3 beyond 576:1 673:21 674:9,9 677:13,16 687:20 689:24,25 694:22 695:9 716:6 bfalaw.com 499:15,16,17,18 bing 589:1,3,9,11 589:11,12,15,17 589:19 590:17 604:20 bit 527:5 528:8 593:10 620:7 630:3 707:19 715:10 bizarre 688:12 blackberry 547:22 547:24 692:20 708:7 bleichmar 499:5 506:24 blog 706:25 707:9 707:10,11,19 710:14 712:1,10 712:20 715:24,24 718:4,8 bold 628:4 bottom 566:14 576:17 676:14 box 552:9,9 649:2 boyle 634:18,23 635:8 636:12 branded 673:5 breach 666:4,17 666:21 667:2,10 | break 514:16,23 569:11,13,15 618:17,19 715:14 brian 541:11 542:23,24,25 briefing 660:11 661:5 663:4 briefings 660:14 661:10 broad 529:10 530:20 613:25 broadly 558:15 604:4 622:19 674:21 broke 622:5 639:19 broken 692:1 bryan 570:5,11,12 570:13,20 bucket 643:16,22 buckets 641:4 build 517:12 518:3 520:10,11 521:13 671:11,18 building 521:24 572:12 built 510:21 567:11 607:21 671:22 697:19 708:6 bullet 545:14,20 545:25 546:25 547:2 548:2 563:22 609:2 611:11 624:15 625:15 637:21 640:1,9,10 643:19 645:10,13,20 649:23 650:17,18 663:13,14,18 | bullets 548:15 550:5 568:22 645:7 673:2 bunch 537:5 657:11 buongiorno 500:16 506:21 business 671:8 692:6,10 693:8,11 694:18,25 695:5 695:12 709:9 711:1,7 businesses 649:8 buy 523:22 buying 524:2 c ca 503:13,18,19,23 503:24 504:6,11 504:12,16,19,20 505:7,8 722:9,12 722:20 calculated 652:9 652:10 california 496:2 496:21 497:2 499:13 500:11 501:8,17 502:9 call 626:14 631:22 called 515:10 590:3,4 609:11,19 632:5 673:12 679:20,22,24 680:4 697:22,24 697:25 calling 514:5 calls 605:16 608:1 612:6 613:6,19 614:9,22 629:4 630:17 632:7 647:10 648:21,23 649:16 653:11 | 657:16 665:8 680:7 682:9 cambridge 622:5 639:19 661:6,8,11 camera 515:23 canvas 552:10 553:3 capabilities 511:14 554:9 558:2,5 563:10,13 563:15 564:23,25 568:15,22 572:19 575:25 577:19 610:14,17 611:7 620:23 633:20 670:3,4 691:7 695:18 697:5,10 699:21,22 700:2 700:14 701:2 702:20 capability 574:12 610:23 617:13 620:4 623:19,20 623:21,22 624:7 625:6,7,8 627:5,6 633:10,21,23 696:1,4 697:5,8 capacity 517:8,25 518:19 545:3 573:19 576:22 578:17 591:7 601:17,19 602:7 627:22 633:18 639:15 653:2 captioned 707:12 capture 573:11 579:17 656:25 captured 580:14 617:17 captures 581:23 |
|---|---|--|--|

HIGHLY CONFIDENTIAL

[career - comment]

| | | | |
|---------------------------|---------------------------|---------------------------|---------------------------|
| career 515:4 | caveats 688:8 | 607:20 714:1 | 594:12 605:23 |
| carrier 566:18 | 689:3,14 | changes 544:4,11 | 630:24 634:4,7 |
| carriers 568:8 | cc 541:12 | 547:19 548:11,13 | 647:4 683:2 |
| carry 640:4 | ccp 722:9,12 | 551:7 554:20 | 707:12 712:14 |
| case 496:4 497:4 | ccr 496:21,22,23 | 557:2 559:6,10,18 | client 606:3 |
| 524:18 547:9 | 721:24 | 560:8 566:4 | close 606:20 715:3 |
| 557:23 562:23,23 | cell 628:15 | 582:14 585:16 | closely 518:3 |
| 563:7,7 567:21 | centralized 580:16 | 592:7 618:8 621:7 | 530:23 620:13 |
| 590:14 601:25 | 581:10 | 621:15 680:1 | 718:6 |
| 618:11 631:25 | certain 531:12 | channel 570:9,22 | closest 540:22 |
| 704:15 705:12,20 | 532:5,8 555:11 | 571:1,5,9 | 645:11 |
| 705:25 706:3 | 559:12 560:19 | characterize 560:4 | code 531:21 544:3 |
| 721:15 | 574:17 575:8 | 562:21 568:17 | 609:21 610:20 |
| cases 546:1 547:3 | 583:9,16,21 | 578:3 624:8 707:4 | 722:9,12,19,20 |
| 547:6 555:9 | 586:11,12 609:9 | 708:22 | codified 528:21 |
| 558:22 559:14,22 | 609:25 610:24 | characterized | coding 639:3 |
| 560:11,14 569:2,8 | 626:14,15 647:21 | 567:3,14 | coffee 517:21 |
| 572:9,22 575:18 | 670:15 677:14 | chat 581:23,25 | collate 561:9 |
| 584:22 585:24 | certainly 551:24 | 582:6,11,23 | colleagues 586:17 |
| 586:1,11,13,13,15 | 560:6 563:15 | 588:15,21,24,25 | collect 580:6 |
| 615:24 705:6 | 564:18 577:18 | 591:20 | 617:10 |
| casting 605:18 | 579:2 611:1 | chats 584:16 587:4 | collected 619:10 |
| catch 572:9 | 612:10 655:10 | check 661:1 | 679:9 |
| categories 562:5,8 | 672:7 | checked 566:8 | collecting 651:5 |
| 567:13,19,22 | certified 497:20 | chen 502:16 | colorado 501:10 |
| 568:1,3 653:8 | 497:21 721:2,3 | 506:21 | column 649:1 |
| 704:1 | certify 721:4,17 | chris 563:24 | 687:2 690:22 |
| categorization | cetera 552:12 | chronological | 696:4,18 |
| 562:1 | challenge 615:25 | 582:24 | columns 628:18 |
| categorizations | challenging 585:8 | cite 656:7 | 628:19 |
| 561:24 709:21 | 676:4 | civil 722:19,20 | come 514:11,21 |
| categorize 551:19 | chance 616:9 | clarification | 523:8 541:10 |
| 712:5 | 691:22 | 596:21 713:18 | 550:23 562:25 |
| categorized 562:4 | chang 541:11 | clean 622:11 | 593:24 594:10 |
| 641:4 | 571:16,17 | 623:11 | 611:14 719:15 |
| category 649:5 | change 511:6 | cleaned 620:25 | comfortable |
| 651:14 709:10 | 566:9 632:15 | 622:24 623:6 | 715:13 |
| caught 572:23 | 724:4,7,10,13,16 | cleanup 622:22 | commencing |
| caution 606:2 | 724:19 | clear 505:5 543:25 | 497:17 |
| caveat 606:19 | changed 515:7 | 558:11 567:18 | comment 610:9 |
| 609:19 702:24 | 554:18 559:17 | 568:23 577:16 | 624:3 664:3,4,21 |

HIGHLY CONFIDENTIAL

[comment - context]

| | | | |
|---|--|--|--|
| 665:3,19 666:20 677:12 683:9 699:14 704:8,22 705:25 715:22 719:10 commentary 623:6 comments 513:13 573:12 commitments 579:17 580:15 common 519:6,8 519:15 comms 664:7 communicate 535:17 586:21 communicating 583:12 586:17 710:7 communication 614:8 communications 565:7 666:18 667:15 community 522:17 529:2 companies 517:10 671:17 707:22 708:6,21 710:9 712:15 715:17 company 517:2 526:21 528:1 538:20 543:15 573:24 579:10 598:15 612:10,22 613:22 621:12 622:13 625:1,22 626:25 640:19 642:12 651:1 652:15,24 654:19 656:5 666:2,12,15 | 666:22 667:8,19 668:5 675:4 685:13 695:3,9 698:18 company's 518:2 547:11 664:5 companywide 638:7 639:17 compiled 619:10 complete 611:13 615:7,10,10,25 645:15 650:1,6,20 677:9 708:15 710:17 completed 686:7 701:23 722:7,17 723:6 completely 551:19 551:21 702:3,4 completing 654:1 completion 721:15 723:10 complicated 680:9 702:17 complies 507:18 comply 637:24 compound 513:10 522:24 549:25 654:16 comprehensive 611:6 comprehensively 622:11 concept 568:4 652:16 concern 534:1 535:22 578:19 599:12 concerned 592:6 618:4 | concerns 591:9 599:20 618:9 635:21 conclusion 614:23 concretely 714:3 confident 515:20 627:5 640:17 641:3 643:20 658:23 694:21 713:10 confidential 496:11 719:4,7 confirm 646:23 647:12 648:8 658:1 670:10 702:2 confirmed 587:7 619:25,25 confirming 587:11 confused 593:10 confusion 671:15 connection 592:20 593:7 600:16 657:2 667:22 conquer 541:13 conquor 503:13 consider 522:2,10 525:7,19 536:25 577:22 578:12 588:4 611:25 655:3 673:24 712:11 consideration 547:20 considered 517:4 522:14 523:23 529:14 531:10 532:3,18 533:4 536:3 537:5,6,11 537:17 538:3,7,11 538:16 539:2,12 | 547:23 550:16 553:22 559:2 566:25 568:9 576:5 577:6,14 579:3,4,7,7 588:3 612:2 626:20 641:1,8 643:7 644:3 655:13 656:11,20 694:4 705:5,11,14,19,24 706:1,3 considering 521:13 525:11 530:22 considers 530:14 577:25 615:15 674:2 consists 685:4 691:6 constituting 663:9 consumer 496:4 497:4 506:10 694:7 712:8 722:4 724:1 cont'd 500:1 501:1 502:1 504:1 505:1 contact 636:11,13 636:15 722:9 contain 527:19 contained 704:10 720:4 contains 556:5 content 523:3,7 524:16 530:6 556:17 589:10,12 590:16 652:5 context 528:3,16 590:23 595:6 597:2 598:12,16 599:20 607:6,25 608:10 614:18 |
|---|--|--|--|

HIGHLY CONFIDENTIAL

[context - cross]

| | | | |
|---|---|--|--|
| 620:8 631:4 632:12 637:12 654:3 664:11 667:3 691:16 701:12,14,21 contexts 699:8 continuation 508:8 continue 508:10 511:18,21 532:16 536:12 537:8 538:9,9,24 539:3 540:18 547:21 555:9 556:1 559:4 559:6,15,23 563:17,19 566:12 569:11 583:4 605:9 623:22 655:19 662:11 685:8 706:6,12 continued 510:21 513:23 533:6 539:14,19 540:8,9 557:13 560:7,18 611:2 623:13 624:4 665:1 685:21 continuing 512:17 664:19 665:14 666:6 contract 516:8 526:18 527:13 528:13 589:14,17 589:22 628:6,20 630:15 675:15 676:11 contracted 527:10 contracts 526:11 526:14,20 527:14 527:16,20 528:12 565:21 566:7,10 | 606:14,18 610:1 contractual 537:13 624:17 contractually 566:11 contribute 529:1 contributes 530:15 controlling 621:15 convenient 618:18 conversation 509:7,8 526:23,24 562:23 683:19 conversations 509:2,4,12,14,15 540:7 564:7 605:4 cool 535:8 603:16 603:19 700:12 corporate 496:13 535:19 539:1 594:17 613:4 677:8 687:21 690:3 706:25 correct 542:21 546:10 574:14 627:12 645:5 648:5 717:25 720:5 corrected 720:5 corrections 719:5 720:3 722:14,15 723:3,4 correctly 537:5 553:17 574:11,13 580:5 583:6,7,13 583:14 584:14,15 587:1,2 588:19,20 607:4,5 609:12,13 610:3,4 611:16 617:17 619:5 622:16,17 636:22 | 636:23 642:19,20 645:18,19,23,24 678:24,25 691:13 691:14 counsel 498:1 499:1 500:1 501:1 502:1,16 506:14 507:3 514:13 535:11,14,16,21 595:20 596:16,22 598:5,18 599:4 719:10 722:18,21 723:7 counsel's 599:19 count 687:17 counted 687:19 counts 615:1 couple 593:21 637:1 661:9 course 520:23 535:25 597:25 603:24 676:8 691:17 courses 597:23 court 496:1 497:1 497:21 507:8,14 507:16,19 541:6 543:5 581:19 602:13 616:6 634:14 635:24 706:18 713:18 721:3 cover 526:15 567:21 606:15 620:11 705:4 covered 527:17 613:10 657:25 658:1,5 704:1,17 covering 705:5 covers 567:10 610:21 658:2 | 695:16 699:2 create 524:16 531:1 594:11 640:4 718:8 created 530:25 553:19,21 563:16 564:25 642:1 699:4 703:3,6 creates 530:5 645:17 646:18 650:3,9,22 creating 546:18 641:20,24 creation 687:8 688:15 creations 688:12 criteria 540:2 562:10,16,18 563:10,21 583:11 625:16 cross 496:13 497:15 503:3 506:8 507:9 508:1 508:6,18 514:7 515:2 517:20 526:10 534:16 536:2,23 541:10 541:14 542:10 543:8 569:10 578:7 585:6 598:25 599:18 600:11 603:6 615:18 616:8 629:23 634:17,22 636:4 637:23 638:4 646:8 650:11 660:1,20 661:16,18 662:5,7 662:10,15,23 664:9,18,24 665:23 666:16 |
|---|---|--|--|

HIGHLY CONFIDENTIAL

[cross - definition]

| | | | |
|---|--|--|--|
| 667:1,9,20 668:7 668:25 669:15 672:6 676:4 705:3 715:5,12 720:1,11 722:1,5 724:2 cross's 600:10 crutcher 500:5 501:5 506:20 csr 496:21,21,22 721:25 current 535:5 cut 598:20 cuts 566:22 | 602:5 605:14 610:12,18 611:3 611:14,20,25 614:2,2,6,20 615:4 617:21 618:4 619:7,10 626:19 638:8 640:25 641:7 657:23 663:21 664:20 665:1,14 666:5 667:11,23 670:6 677:18,21 678:1 678:20,22 679:8 683:8,12,15,16,17 683:21,25 684:1 685:10 689:15 691:10 695:21 696:6 697:6,9,15 698:13,22 699:7 699:24 700:5,17 703:5,10,16,21,25 704:17,24 706:7 709:8 713:16,20 713:22,22 714:6 716:2 717:25 date 542:13 582:10 602:18 668:21 676:21 678:21 687:8,11 688:15,18 689:4 689:24 690:20 696:9,12 703:14 704:2,8 721:20 722:16 723:5 724:24 dated 503:11,21 504:4,14 541:11 581:16 634:19 660:4 721:23 dates 513:4 621:5 701:16 | davis 499:8 506:25 day 517:20 660:18 669:1 676:5 720:6 days 508:19 december 505:4 602:18 685:25 686:11,14,14,17 706:22 decide 624:13 628:10 658:17 715:9 decided 517:11 518:2 583:20 659:5 deciding 531:11 532:4,16 533:5 536:4,23 539:3 540:17 563:2 655:19 657:3 decision 533:11 540:2 541:1 564:6 564:10 573:12 583:16,23 621:24 622:2 625:16 642:15,22 645:4 645:14 646:16 648:5,16 649:13 649:25 650:8,19 656:10,19 657:1 658:8 659:20 decisions 530:16 562:22 564:3,14 579:17 580:15,23 584:9 645:22 657:9 658:25 659:16 664:25 deck 504:15 543:3 543:20 545:17 546:13 548:23 551:1,22 554:17 555:20,24 556:16 | 556:20,23 558:14 558:17,18 562:3,6 566:1,3 570:2,17 570:19 572:12,16 573:19 580:8 604:2 618:21 625:1 630:14 632:22 634:20,21 636:2,5,18 637:2,4 637:12 641:13 642:1 644:19,23 646:22,23 648:15 650:4,6 654:20 655:1,24 656:9,18 657:22 658:6,8,13 declare 720:1 deem 588:23 deemed 699:22 defendant 506:20 668:11 define 517:14,15 519:11 520:4 534:24,24 537:19 559:13 562:10,15 655:18 defined 560:12 562:18 568:7 615:9 654:24 655:1 672:25 673:20 675:22 694:11,24,24 695:11,11,12 defines 519:7 537:24 653:25 677:14 definition 517:1 518:10 519:10,13 519:19,21 520:2 520:17,20 560:16 567:9 575:22 577:14 578:20,22 |
| d | | | |
| d 698:2,2 dallas 500:20 daniel 498:7 502:5 506:17 507:7 daniels 563:24 data 510:4 511:10 511:15,18,21 512:1,16 513:17 513:23 514:4,5 524:9,10 528:24 529:1,6 530:16 531:12 532:5,8 536:24 539:5 540:19 546:4,7 552:11 553:8 555:3,13,14,15 557:6,14 573:10 573:15 574:15,16 575:6,7,20 576:1,8 576:10,19,21,21 576:25 577:1,8,12 577:22 578:1,3,6 578:12,23 579:2,4 579:5 583:5 589:18 591:3,6,17 592:9 599:16,21 600:12 601:1 | | | |

HIGHLY CONFIDENTIAL

[definition - designations]

| | | | |
|---|--|---|---|
| 578:25 579:9,10 580:19,21 590:13 613:10 615:8,21 619:13 631:17 632:14,19 633:14 656:7 671:3 673:21 674:7,17 675:12 684:1 705:11,23 definitions 615:20 632:15,17 694:23 definitively 539:21 denominator 519:15 denver 501:10 depended 659:11 depending 574:5,5 574:6 632:15 depends 580:19 depo 660:25 714:23 deponent 497:16 503:2 507:18,24 512:8,20 513:11 514:1 516:6 517:17,24 519:1 519:18 520:1,8 521:7,10 522:5,25 523:14 524:13 525:1 527:2 528:7 528:19 529:9 530:1,20 532:21 533:13 535:8 536:8 537:3 538:18 539:10,24 541:15 547:8 549:7 550:1 554:14 555:19 556:11 557:8 562:21 567:24 | 569:21,25 574:20 575:11,22 576:12 577:25 581:7,21 583:19 584:2 585:5,11 586:20 588:10 589:21 591:19 592:4 595:3,22 596:9 600:24 601:18 603:12 606:7 607:10 608:2 611:23 612:7,17 613:8,21 614:5,11 614:24 616:24 618:6,24 621:21 623:1,17 624:2,24 625:21 626:24 627:20 629:6 630:11,19 631:5 631:24 632:10 635:7 637:8 638:14,24 639:11 640:17 641:10 642:25 644:7,21 646:2,21 647:12 647:25 648:7,22 649:18 650:13,25 652:13,23 653:13 653:19 654:18 655:6,23 656:14 656:23 657:8,18 658:22 659:8 661:3 663:1 664:3 664:15 665:9,18 665:25 666:10,20 667:6,14 668:1 669:25 673:10,19 674:6 675:2,20 676:1,8 677:12 679:11 680:15 681:2,11 682:10 | 682:22 684:3 688:4 689:1,12,22 690:8,18 691:22 692:12 693:1 694:21 695:8 697:1 699:13,20 700:8 701:1,20 702:16 703:19 704:5,22 705:9,22 706:10,24 708:20 709:2,20 710:3,13 710:21 711:6,15 711:20,25 712:5 713:2,25 714:15 715:13,22 716:8 716:17 717:2,18 718:3 deponent's 496:15 deponents 721:7 deposition 496:12 497:15 506:8 507:21 508:9 514:8 592:2 595:12 600:10,23 702:15 704:4 719:3 721:14 722:19,22,24 723:8,10 deprecate 607:2 608:7 658:18 deprecated 510:16 511:18 513:9 532:12,14,15,17 533:3,7 536:5 537:9 539:20 540:9 555:22 556:2 561:10,16 582:19 604:18,19 608:25 609:5 623:12 637:15 640:8 643:13 | 644:12 685:17 701:15,22 702:4 deprecation 512:10 513:4 557:14 560:19 577:10,19 667:22 685:10 686:6 688:23 701:16 deprecations 559:14,24 583:3 587:9 derek 498:6 506:16 541:18 560:25 634:24 668:18 691:18 describe 554:8 560:22 589:7 613:4 638:6 671:10 described 509:1 560:1 629:2 641:15,18 describes 568:13 627:13 630:14 658:13 description 503:10 504:3 505:3 628:9 691:2,25 700:1,11 700:13,20,21,22 702:8 709:6 710:17 descriptions 552:18 709:11 design 571:20 designated 508:13 509:23 714:20 designation 719:13 designations 719:14 |
|---|--|---|---|

HIGHLY CONFIDENTIAL

[designed - document]

| | | | |
|---|---|---|---|
| designed 646:15 656:25 designee 539:1 594:18 664:10 677:8 687:21 690:3 despite 678:8 detail 523:19 557:11 570:18 589:23 626:25 653:20 697:12 detailed 644:17 details 510:17,24 513:21 619:14 638:15 646:3 647:21 648:3 649:12 658:14 determinant 539:14 determination 531:7 614:25 640:22 641:21 644:1 654:23 675:4,4 determinations 537:12,14 718:7 determine 514:2 558:4 566:10 578:18 640:7 643:12 644:15,22 682:3 689:18 determined 536:11 625:11 676:10 689:5 722:18,22 723:7 determiners 525:23 determining 537:6 540:7 679:16 dev 548:2,3,5,6 | develop 567:4 621:14 developer 511:1 518:14 519:4 521:15,25 524:2 527:18 528:10 531:2 544:11,23 548:6,9,12,13 550:13 553:23,24 559:7 567:4 574:10,22 606:13 607:19 612:24 626:5 674:13 692:23 693:2,4,7,9 693:11,14,17,20 693:23,25 694:4,8 694:9,14 701:11 707:16 developers 517:10 521:20 523:21 524:10,14 525:12 529:11 544:14 545:5,6,24 548:8 551:25 552:23 553:2 554:25 555:8 559:3 565:9 574:9,23 577:21 582:22 583:2 588:17 606:15 613:1 617:9 691:9 693:5 695:20 700:4,16 701:10 development 622:7 device 526:2 538:4 560:7 617:12 devices 671:12,19 692:20 708:6 dgarrie 502:11 diagramming 556:7 | dialog 552:10 dialogs 552:24,25 552:25 dialogue 552:22 differ 653:22 difference 692:9 695:4 different 513:5 519:11,12 521:4 526:16 552:21 554:7 561:23,25 562:4 576:16 584:7 597:19 609:21 619:20,23 627:13 630:23 632:1,2,17 638:10 657:11 660:18 671:12 687:19 692:1 695:15 702:6,19,23 709:7 709:14 719:16 differs 656:4 difficult 595:12 598:11 difficulty 542:8 direct 533:20 direction 721:11 directly 522:22 567:25 director 645:11,21 647:21,22 648:4 648:15,17 649:13 650:7 658:16 707:15 directors 642:15 642:21 645:4 646:15 649:24 650:14 651:6 directs 553:25 676:19 | disclosures 617:15 704:1 discrete 508:12 discuss 512:9 discussed 510:7,24 510:25 511:10,13 511:13 560:6,17 564:14 591:10 656:2 657:22 661:11 discusses 661:6 discussing 509:17 510:15 discussion 564:21 584:8 585:19 672:22 684:23 discussions 525:12 584:5 distinct 552:6 distinction 694:16 distinctions 719:7 719:15 district 496:1,2 497:1,2 divide 503:12 541:13 division 632:16 dloeser 498:14 document 496:6 497:6 541:25 547:9,11 549:10 581:14 593:15,17 594:6,6,14 595:2 595:15,15,16,21 596:2,7 598:12,17 598:19 627:9 629:8 641:16,18 660:24 661:4,9,14 668:14 669:17 672:4,7 673:22 674:10,18 675:22 |
|---|---|---|---|

HIGHLY CONFIDENTIAL

[document - entire]

| | | | |
|---|--|---|--|
| 677:6,13 694:25 695:11 699:23 706:16 715:1,4,9 715:14 documentation 640:21 documented 637:25 639:5 654:4 documents 508:19 508:20 509:3 538:19 539:11 541:20,22 594:23 595:24 600:6 616:15 636:7,8,16 661:22 662:2,13 662:16 690:9 715:6,6 doing 524:6 604:4 620:16 682:22 door 569:22 double 661:1 doug 563:24 download 526:3 draft 548:23 566:2 570:17 dramatically 663:20 drew 634:19 635:13,14,14 driver 540:25 drivers 622:7 driving 639:20 drove 622:1 dub 553:4,4,4 due 681:15 dunn 500:5 501:5 506:20 | e e 499:6 503:8 504:1 505:1 722:9 722:12 723:1 724:3,3,3 e.g. 563:25 625:16 earlier 533:15 633:14 661:17 early 564:16,16 easy 526:2 ecosystem 523:16 544:23 607:19 eddie 541:4 634:18 636:14,16 edge 513:14 educated 523:18 effect 535:4 effective 594:2 599:7 effort 550:14 593:22 604:6 608:19 610:14 624:6 636:11 644:16 efforts 510:8 622:13 624:10 636:13,15 639:9 690:13 eight 545:17 546:14,23 551:22 573:20 585:17 589:6 591:21 either 533:21 585:18 635:12,15 635:19 637:15 703:20 715:4 elapsed 545:19 elia 509:14 510:13 510:24 511:3,9 668:23 | eliminated 555:15 email 503:11,21 504:4,14 509:14 541:10,13,14,16 542:11,12,16 581:15,23 602:16 602:18,20 603:25 605:1,3,22 606:9 608:4 609:6 611:10,24 614:14 620:12,14 634:18 636:5 660:3,21 662:4 embed 553:5 emit 511:10,17,21 511:25 512:15 513:17,23 539:4 611:3,14,19,25 614:1,2 617:20,23 638:8 641:7 655:3 655:10,13 683:8 683:12,25 699:23 703:25 emitted 546:17 610:12,17 640:25 654:11,24 657:22 679:17,23 681:8 681:13 682:18 683:10 684:5 697:9,16,20 698:13 703:16,21 704:16 emitting 514:4 emma 498:8 507:2 employed 588:10 employee 666:17 721:18 employees 509:5,6 663:8 707:2,5 employment 520:23 | empty 558:15 enable 573:12 579:18 580:18 589:9 670:5 enabled 704:12 enacted 551:5 552:3 557:3 558:13 566:4 568:19,25 encourage 530:7 endeavor 534:22 endpoints 678:19 679:4 695:21 700:5,17 energy 531:5 enforcement 509:18 enforcing 601:21 engaged 544:21 671:18 engagement 652:4 652:14,16 engineer 582:3 engineering 651:3 682:3 engineers 690:10 england 496:15 497:17 506:1 enhance 602:7 626:17 enrich 524:19 enriches 530:4 ensure 534:8 574:11 578:6 610:1 637:24 639:1 ensuring 545:21 entail 681:17 enter 526:11 entire 608:19 687:19 |
|---|--|---|--|

HIGHLY CONFIDENTIAL

[entirely - explains]

| | | | |
|--|--|---|---|
| entirely 556:12 609:15 633:13 641:2 entirety 595:1,20 entities 519:3,12 519:21 521:23 527:12 540:18 567:1 671:16 674:14 677:2,4,20 699:6 entity 521:12 530:23,24 590:10 612:19 676:10 687:2 entry 695:25 enumerate 552:16 617:2,3,5 equipment 525:18 errata 722:14,16 723:3,5 escalate 642:16,22 644:2 645:5 escalated 643:6 644:9,11 escalation 504:15 504:18 634:20 635:20 636:20 640:12 establish 622:14 established 520:21 estimate 644:8 estimates 643:15 643:20 estimation 571:8 626:2 et 552:12 evaluates 640:2 event 639:8 events 512:5,25 513:15 621:17 661:6 699:7 | eventually 555:8 everybody 529:17 evidenced 592:7 evolve 622:15 ewright 498:16 exact 513:4 543:17 718:7 exactly 528:2 544:8 557:1,2 559:19 588:18 621:22 629:10 643:11 652:9 653:21 657:24 658:4 659:15 680:8 689:13 713:25 examination 503:2 508:4 662:16 examined 508:2 examining 508:13 example 518:18 523:1,4 525:3 529:11 530:1 538:4 540:17 547:17,21 560:7 566:9 574:7,7 625:5,10 626:8,13 646:10 688:11 692:17,19 700:23 710:22 711:20 examples 518:15 527:23 617:6 626:10 673:1,4 695:13 710:24 711:15 712:1,10 713:3 exception 685:12 686:9 exceptions 584:13 587:9 | excerpted 595:1 excerpting 594:14 excess 566:11 excuse 509:8 682:10 executed 720:6 executive 660:9 exempt 558:22 559:14 560:12,13 569:1 572:8 exercise 640:6 exhibit 503:11,15 503:21 504:4,8,14 504:18 505:4,13 505:15,17 541:5,9 542:1,2,3 543:3,4 543:19 579:13,15 581:18 592:10 593:21 594:1,11 598:22,22 599:15 599:19 602:12,25 616:4,5 634:13,17 634:25 635:3,6,23 636:4 659:23,25 659:25 660:2 668:8,17,19,20 669:24 670:24 706:17,21,21 exhibits 505:11 exist 510:21 514:3 536:12 556:24 558:6 570:20 572:2 581:3 683:10 698:17 existed 511:15 529:12 566:7 576:24 606:18 607:16 610:15 612:25 624:7 existence 587:6,17 587:19 642:13 | 679:18 685:7 existing 621:13 622:13 exists 581:2 702:4 704:25 expect 583:1 653:22 699:17 expectations 607:19 expected 529:15 559:4 571:24 591:13 604:22 650:15 651:8 653:14,21 experience 523:21 545:2 602:8 617:11 625:25 626:17 643:2 651:2 675:7 experiences 583:10,17 671:22 694:7 708:9 712:8 expert 600:25 601:20 652:9 658:23 664:7 665:21 666:10 667:7,17 689:2 expertise 523:17 668:3 expiry 566:9 explain 523:18 545:15 554:15 594:25 604:24 650:8 654:2,5 680:10,11 687:22 690:22 710:8 explained 710:15 explaining 645:16 646:17 650:2,21 explains 604:4 |
|--|--|---|---|

HIGHLY CONFIDENTIAL

[explanation - fairly]

| | | | |
|--|---|--|---|
| explanation 534:18 601:13 623:7,9 693:3 710:4 express 530:13 expression 682:6 extension 685:7,13 685:24,25 686:16 687:20,23 extensions 685:11 686:8 688:1 689:19,23 690:5 690:16 extensively 683:22 extent 509:11 513:22 540:16 607:8 640:15 external 574:8 620:22 638:11 externally 583:12 extremely 669:17 | 527:10,13,17,18 527:19 528:9,12 528:14,17,24,25 529:1,4,5,7,21,21 530:4,5,7,9,10,14 530:15,22 531:1 531:10,11,17 532:3,4,18,19 533:4,5,9,10,13 536:2,3,11,13,25 537:1,18,22,24 538:12,13,15 539:21,25 540:15 543:8 544:11 546:6 547:4,22,25 548:9 549:4,23 550:3 552:21,24 553:4,24 559:3 560:2,5,13 565:10 567:2,4,16,20 570:22,25 571:24 574:16 575:7,17 577:22,25 578:4 578:12,15,16,18 578:23,24 580:17 580:22,25 581:4 583:15,20,22 584:3 586:3,6 587:24 588:7,11 588:12 589:3,10 589:12,14,16,18 590:16 592:13 593:14,23 594:5 594:25 595:15 596:6,7,11,14,23 596:25 597:14,19 597:20,21 599:5 599:25 600:1 601:25 606:14 607:1,7,12 608:18 611:18 612:4,13 | 612:18,19,24 613:2,17 615:15 617:24 618:4 619:6,12 623:14 629:2 632:4,6,16 638:20 639:8 640:13 641:6 643:5,8,10 644:1,3 647:14,16 652:5 653:25 655:2,8,18 657:4,14,19 659:4 659:18,21 660:15 663:23 664:11,25 665:6,12,20 666:3 667:2,22 668:9,11 670:19 671:2,8,9 671:10,15,18,20 671:21,21,23,23 671:24 672:25 673:5,8,15,16 674:2,13 675:3,12 675:15,24 676:11 676:15,19 677:2,4 677:22,24 678:1 678:15 679:7,16 679:19,25 683:11 683:24 684:4,11 684:13 685:3,19 689:7,17 692:20 693:2,3,7,9,11,13 693:17,20,23,24 694:4,8,9,14 695:2 697:15,20 698:15 698:22 699:4,6 701:10 703:3,6,13 704:2,15,19,23 706:4,10,22,23,24 707:2,3,5,8,10,13 707:21 708:2,5,5 708:10,17 709:24 710:9,19 711:12 | 712:22 722:4 724:1 facebook's 496:12 505:6 510:8 528:14 538:25 544:14,25 545:22 547:10 548:7,19 548:22,25 549:9 549:12 582:9 583:25 594:17 598:7 600:25 601:21 613:4 639:3 642:23 660:9 664:10 667:10,21 669:2 670:22,25 671:12 671:17 674:7 676:16,20 677:7,9 678:9,14 680:3,24 681:3 683:20,22 684:1 687:21 690:3 691:1 692:15 694:17 698:21 706:25 707:6 facility 682:4 facing 552:25 620:22 707:20 fact 548:19 560:2 608:21 643:5 647:8 factor 540:8 factors 621:23 659:12 fair 529:5 548:21 591:14 611:18 612:12 629:3 631:21 647:6 648:18 693:10 fairly 643:20 |
| f | | | |
| f8 582:12 facebook 496:3 497:3 500:4 501:4 505:4 506:10 509:5 511:1 513:21,21 514:2 515:4 516:8,11,24 517:11,12 518:2,3 518:7,13,13,23 519:4,6,7,9,16,24 520:6,12,15,24 521:12,14,19,20 521:25 522:1,3,11 522:17,19,20,22 523:2,9,12,25 524:7,10,11,16,19 524:24 525:9,19 525:20,20 526:1 526:10,15,17,19 | | | |

HIGHLY CONFIDENTIAL

[fairness - fourth]

| | | | |
|---|--|---|--|
| fairness 528:23 529:4 | fewer 696:18 | 685:1,1,3 695:25 708:4 | 656:12 659:7 664:1 665:17,24 |
| fall 568:3 703:25 | field 685:8 700:5 | fit 702:8 | 666:8 667:5,12,25 |
| falls 649:4 | fields 678:20,22 679:8 691:10 | five 714:20 | 674:4 681:10 |
| familiar 597:6 610:7 698:23 | 695:21 700:17 | flagged 640:11 | 684:2 688:3,25 |
| familiarize 603:2 | figure 511:16 557:24 | flip 643:14 684:9 | 689:10 690:7 |
| familiarizing 603:5 | fill 647:21 649:19 650:15 | floor 502:8 | 692:25 694:20 |
| family 663:9 | filled 657:11 | flow 535:16 | 695:7 699:12 |
| far 551:9 552:8 628:3,17,19 | filling 650:7 | focus 514:24 550:14 598:23 | 701:19 702:5 |
| 631:17 | final 558:17 587:12 642:15,21 | focused 521:23 522:7 534:12 | 703:17 704:4,21 |
| faster 517:20 627:12 629:3 | 645:4,14 646:16 | 703:20 704:11 | 705:8 706:8 |
| fb 503:13,18,19 504:6,11,12,16,19 | 649:25 650:19 | fold 609:10 | 708:19 710:2,12 |
| 504:20 505:7,8 | finally 511:1 | folks 564:7 | 711:5 713:1,24 |
| fb.com 722:2 | financially 721:17 | followed 643:12 646:3 658:24 | 714:14 715:20 |
| feature 712:23 | find 530:11 600:3 604:1 641:23 | following 620:20 654:10 669:1 | 716:7 717:1,16 |
| featured 604:17 | 644:13,23 669:11 | 673:3 700:9 | 718:1 |
| features 561:10,16 573:10,16 575:20 | 712:19 | follows 508:3 722:8 | formal 515:13 518:10 560:15 |
| 576:19,21 605:7,7 | fine 594:9 597:11 597:11 662:22 | fonti 499:5 506:24 | 562:17 563:3 |
| 605:10,13 708:5 | fining 591:15 | foregoing 720:2 721:5,7,11,13 | 568:24 571:6 |
| 712:15 715:17 | finish 715:2,8 | form 512:7,19 513:25 516:4 | 578:24 579:8,10 |
| february 668:22 | finished 539:18 627:8 | 517:23 518:24,25 | 580:12 587:12 |
| federal 721:14 723:1,8,9 | finishes 535:13 | 519:17,25 521:14 | 614:25 705:10,23 |
| federated 640:2 | finishing 715:13 | 523:23 524:12,24 | formally 572:13 |
| feel 591:1,4 612:21 624:25 625:22 | firehose 589:1,4 589:24,25 590:3,4 | 524:25 528:6,18 | forms 538:15 |
| 650:25 657:12 | 590:6 | 529:24 536:7 | formulated 715:24 |
| 665:18,25 666:14 | first 545:20 552:8 555:14 561:9 | 547:7 549:6 | formulation 689:4 |
| 666:20,24 667:8 | 573:14 597:24 | 554:13 555:18 | forth 534:25 721:7 |
| 667:17,18 668:2,2 | 611:11 624:15 | 556:10 557:7 | forward 620:24 621:16 684:9 |
| 668:4 674:8 | 628:4,20 633:12 | 558:18 562:20 | found 591:2,5 640:10 |
| 683:19 688:5 | 636:19 640:1 | 567:23 574:19 | foundation 516:5 658:20 |
| 689:5 690:22 | 645:10 648:25 | 575:10,21 577:24 | four 550:5 561:18 566:16,17 567:19 |
| 718:3 | 649:1,6 651:17 | 611:21 612:16 | 567:21 568:1,3 |
| | 669:1 678:10 | 641:9 644:5 | 584:16,17 673:1,4 |
| | | 646:20 655:22 | 710:22,22 |
| | | | fourth 668:12 |

HIGHLY CONFIDENTIAL

[frame - give]

| | | | |
|---|--|--|--|
| frame 510:9 551:23 572:3 598:13 framework 563:4 framing 667:6 francisco 500:11 541:4 frankly 635:5 686:25 frcp 723:1 frequently 523:9 friday 660:18 friend 509:20,20 510:25 511:6,10 511:15,17,21,25 512:16 513:23 534:3 536:24 539:4 540:19 552:11 553:8,8,10 555:3,13,14,15 557:5 575:6,13 576:1,8,9,20,25 577:1,2,8,11,22 578:3,12,23 583:4 583:9 587:9 590:23 591:2,5,15 593:2,22 600:2 602:2 605:14 610:12,17,19 611:3 614:2,20 615:4 617:21 618:4 640:25 641:7 657:23 664:20 665:1,14 666:5 667:11,23 677:18,25 679:23 679:23 683:8,12 683:15,21,25 684:1 685:5,10 687:14 688:21 689:8 698:13,22 | 699:7,24 703:5,9 703:16,21,22,23 703:25 704:11,17 706:7 709:8 713:8 713:13,15,16,20 713:21,22 714:6,8 714:11 716:2,3 friends 512:14 513:1,2 523:4 524:18 530:5 552:11 553:7 555:3,12 557:5,14 583:3,5 584:13,18 602:4 617:24 663:9 677:21 678:19 683:16,17 691:11 695:22 699:9,9 700:6,18 703:9 704:13 708:10 714:18 716:4,14,22,24,25 717:8,11,14,15,20 717:21,23 718:15 718:17 front 600:12 frozen 609:11,14 609:16,16,20 ftc 712:17 full 512:10 553:8 583:4,9 610:24 638:14,17 708:23 fully 540:3,4 592:25 610:20 615:12 621:24,25 621:25 633:16 663:15 680:10 function 637:23 638:4 functional 561:18 562:9 | functionality 560:18 functions 533:7 further 597:2 608:12 643:6 719:7 721:13,17 future 524:23 525:3,8 573:13,13 579:18 580:18 607:2,24 608:7 622:13,15 g game 588:17 712:12 games 561:18,18 565:15 566:17,18 566:23,24 568:9 712:8 gamut 512:10 526:20 552:21 garbled 630:3 gareth 581:16 582:2,3 garrie 502:5 507:3 507:6,7 533:14,19 533:23 534:4,14 535:9,10,25 595:11,18,25 596:3,12,16,20 597:1,4,9,15,17 598:3 599:1,3 719:9,18 gate 701:2 gated 610:23 620:22 gating 639:1 general 502:16 528:10 530:21 531:22 540:14 597:19 680:23 | generally 516:15 521:18 528:23 552:17,19 564:8 583:25 584:4 589:7 596:8 623:10 674:11 697:4 701:9 getting 546:8 676:5 711:22 717:14 gibson 500:5 501:5 506:20 gibsondunn.com 500:13,14,22 501:12,19 give 507:21 512:2 517:21 525:3,14 527:4 529:10 532:10 533:17 534:18 546:10 579:1 580:5 585:7 594:6,13 595:7,9 601:4,8,12 605:2 606:22,23 607:12 612:20 613:23 614:12 615:6,9,9 615:13,17 620:2 621:12 623:2,5 624:25 625:4,4,22 625:23 626:11,24 626:25 627:16 629:7,24 633:16 639:17 641:5 642:9 651:1 652:24 654:19 655:7 659:13 665:9 667:18 673:21 674:8,9 675:3 676:6 684:18 689:6,15 701:25 710:4 |
|---|--|--|--|

HIGHLY CONFIDENTIAL

[give - happy]

| | | | |
|--|---|--|---|
| 711:25 712:20 713:5 714:2 716:19 given 545:18 546:13 547:15 564:19 581:11 602:6 606:11,11 606:20 623:19,19 625:25 679:20 685:4,7 702:24 704:23 708:16 709:7 710:16,18 710:22 713:3 717:24 719:6 721:12 gives 673:1 677:15 711:15 giving 512:22 603:2,22 615:5,25 655:9 678:2 giza 518:20 go 521:9 526:4 529:25 530:19 535:14 536:17 537:25 539:9 542:7,9 543:2 545:7 550:18 552:8 557:16,24 570:1 571:11 576:1 579:12,15 581:13 585:10 588:15 599:10 601:12,16 603:10 604:14 611:9 616:3 618:14 619:1 620:15 622:21 627:7 630:10 632:9,22 634:1 636:1 638:23 639:15,21 642:2,3,4,14 | 644:25 646:6 649:21 657:17 659:23 662:23 663:3 669:11 670:17,21 672:14 676:12,13 682:23 686:11 690:24 694:6 695:24 700:25 707:19 709:4,19 712:13 715:9 718:19 719:10,20 goal 550:17 558:8 558:19,21 560:1 569:1 572:6,7,8 goals 545:11 547:5 548:16,18,19,22 548:25 549:3,9,9 549:13,22 550:3,9 550:11 goes 583:8 584:12 586:23 going 507:13 533:19 534:6,16 536:16 541:8 546:14,24 554:22 555:15,16 569:21 572:15 585:2,11 586:3,6 592:12 594:15 595:18 597:23 599:10 602:15 603:9 616:16 618:16 621:16 637:5,6 648:16 659:24 661:12,14 668:7 668:14 684:25 702:7,14,17 717:3 good 506:16,23 508:6,6 533:17 534:20 547:21 | 569:11 623:8 714:23 govern 577:7 578:1 589:17 605:23 governs 528:13 grant 533:6 584:21 585:23 586:1 620:21 684:14 689:18 granted 575:19 684:13,16 689:23 696:9 granting 573:9,15 576:19,20 graph 510:21 524:18 529:2,12 529:14,17 530:2 531:19 544:5 545:20 546:3 550:25 552:10,22 579:20 581:1 685:9,11,17,19 686:1 691:11 694:3 695:23 700:19 graphic 644:1 great 514:18 548:10 569:12 603:12 618:19 greatly 653:22 group 524:22 525:5,6 526:24 527:9 562:9 563:24 631:19 656:4 658:18 groups 512:5,25 513:15 561:18 699:8 700:23 701:4,9,9 702:10 | growing 524:5,5 guardian 518:21 guess 536:16 guessing 584:12 guidance 663:4 guys 603:22 h h 503:8 504:1 505:1 724:3 half 566:5 hand 507:17 513:6 handled 565:15,16 565:17,19 722:8 handling 571:25 handwritten 514:10 hang 712:20 hannah 501:6 506:22 happen 561:13 562:11 563:11 564:16 565:23 571:22 579:19 608:21 610:5 622:18,20 640:5 happened 557:4,6 557:9,23 561:21 561:22 562:14,14 563:15 564:24 565:5,7 566:1 571:3,7,23 573:3,4 580:10 610:7,10 639:18 643:1 659:11,15 660:15 717:12 happening 579:21 623:9 happy 514:23 569:9 597:12,25 648:20 |
|--|---|--|---|

HIGHLY CONFIDENTIAL

[hard - including]

| | | | |
|--|--|---|---|
| hard 520:3 525:10 530:21 557:8 563:14,21 565:24 573:2,3 578:17 588:11 594:19 595:3 607:10 608:3 612:7,8,8,17 615:9 616:25 624:2,24 626:24 627:20 629:6 630:20 648:11 659:13,13 674:8,8 704:8,8,25 he'll 715:7 head 573:20 header 570:8 571:12,19 608:16 637:13 639:22 642:18 643:15 645:3 695:25 headers 687:1 heading 561:2 566:13 568:10 604:10 620:18 622:10 663:4 671:2 hear 583:2 715:7 heard 528:19 heartbeat 517:22 hello 604:1 help 509:5 514:10 532:7 533:16 537:19 553:16 593:17 608:9 614:5 633:2 637:12 649:13 656:25 679:11 683:14 helped 550:23 helpful 592:23 625:3 634:25 | 683:3 702:18 helping 708:3 helps 537:24 hendrix 509:7,16 hereto 541:7 543:6 581:20 602:14 616:7 634:15 635:25 706:19 hi 625:16,18 626:1 high 557:12 640:11,11,13,14 641:1,1,8,8 643:7 643:8 644:3,3 656:11,11,20,21 657:3 highly 496:11 719:3 historical 622:12 history 527:25 hits 680:20 hive 698:8,11 hoc 562:19,22 hold 682:21 holistic 588:13 home 569:23 hope 537:4 634:7 hour 618:16 hregan 501:12 hubs 673:6 huge 570:18 hurren 541:11 542:24,24,25 570:12,13 | ideally 514:19 520:12 identical 572:10 identifiable 614:19,21 615:23 615:24 identification 541:6 543:5 581:19 602:13 616:6 634:14 635:24 706:18 identified 511:24 529:21 605:21 619:6,12 620:10 620:11,14 629:13 631:8 657:4 662:3 662:9,13 672:5 677:3,5 689:19 699:4,18 705:4,19 identifies 690:25 703:14 identify 506:14 623:12 629:19 630:7 633:8 642:11 683:25 684:12 698:13 710:25 identifying 604:25 623:18 678:15 680:4 iii 496:17 503:3 722:5 724:2 illustrative 695:13 imagine 555:24 590:17 imaging 570:19 ime 541:3,12 602:17 impact 544:13,22 548:12 558:22 560:14 569:2 | 651:14 impacted 570:10 570:23 571:1,9 583:2 implement 550:24 implementation 574:14 639:2 implemented 549:4,24 559:18 559:19 574:10 638:12,15,18 686:2 697:15 implementing 574:13 638:20 implications 522:16 important 567:6 574:10 577:6 578:1 579:5 impossible 598:11 imprecise 633:4 improving 622:7 inappropriate 647:18 inc.'s 668:11 include 578:23 605:13 610:12 674:24 694:13 699:6 711:11,16 711:17 712:2,11 included 577:8 610:25 619:7 662:17 671:24 684:6,7 692:13 699:15,17 703:7 709:23 722:14 723:3 includes 602:4 615:1,4 692:3,6 including 509:25 538:11 602:17 |
| | i | | |
| | i.e. 554:25 604:18 605:5 ian 502:16 506:21 idea 554:5 559:12 570:14 596:15 609:25 611:1 623:11 653:7 | | |

HIGHLY CONFIDENTIAL

[including - investigate]

| | | | |
|--|--|--|---|
| 604:5 610:17 611:2 685:10 709:11 incomplete 680:13 increase 523:10 index 503:1 589:9 indicated 598:19 662:1,2 686:5 indicates 685:3 686:8 indicative 572:11 individual 564:5 industry 590:7 info 663:10 inform 656:25 informal 591:20 information 529:5 537:8 538:8 545:22,23 546:17 556:1,20 563:18 575:12 578:4 586:18 590:10,12 590:18 591:11 592:8,18,19 593:5 593:6 600:15,16 602:1,4 614:19,21 617:16,23,25 618:10,13 626:15 626:16 628:18 648:14 649:4,20 651:6,14 656:25 657:13 676:18 679:7,16,23,25 680:2,5,25 681:4,5 681:8,13,16,22 682:8,18 683:10 684:5,7 687:24 688:7 689:2 690:14 695:15 696:22 697:2,8,19 698:16 704:6,7,10 | 704:13,24 707:2,5 707:22 708:17 709:25 710:10,16 710:18 711:13 712:16 713:4,13 713:15 714:12,18 715:18 716:21,24 717:7,13,19 718:15 infrastructure 514:2 ins 552:11 553:5,6 inside 553:3,4 insignificant 590:18 installed 717:13 installs 696:19 instances 681:18 instant 604:18 605:16 instruct 534:17 integrate 567:4 622:12 integrated 675:11 integration 518:24 519:3 521:14 523:1 537:7 538:4 538:9,24 566:21 566:22,25 567:9 567:17,20,25 568:4,6 584:24 589:6,9,23 590:1 590:15 671:3,13 671:16,17 672:25 673:1,7,12,16,19 674:2,12,14,17 675:9,9,10,14,20 675:21,23 676:10 676:16,19 677:3,5 677:10,14,18 678:14,16,17 | 679:2 692:3,10,10 692:14,22 693:6 693:11 694:17,23 695:4,10 708:8 709:12 714:17 716:9,11,15 integrations 517:13 518:4,7,12 520:11 521:24 522:8,10,14 524:14 536:9 547:17 559:1,4,6 559:11,22 560:6,7 560:17 563:5 567:10,14 568:8 604:19 605:17 671:18,22 673:6 674:16 692:6 693:9,13,16,19 694:18,25 695:5 695:12 708:21 709:10,12 711:2,7 711:18 712:3 714:2,16 717:4 intend 599:18 intended 648:4 649:19 650:5 656:9,19 710:6 intent 580:11 611:4 intention 646:24 interact 523:9 interacting 525:5 interactions 652:1 652:3 interchangeably 567:8 interested 579:24 721:18 interesting 523:7 | interject 702:1 internal 663:10 interpret 601:3 627:21 650:23 674:20 interpretation 601:4 602:2 605:3 607:13 625:24 631:21 647:1,13 interpreted 630:22 interpreting 573:24 600:25 601:21 interrogation 589:17 interrogatories 668:13 669:2,14 670:8 684:10 699:5 709:5 interrogatory 668:8 670:13,17 670:22,25 672:24 674:3 676:20 678:5,10 684:11 691:1 699:5 709:5 711:2,10 interrupt 533:25 535:16 intervene 533:16 introduce 541:9 597:5,7,12,14 598:21 599:11,19 634:16 668:8 introduced 607:17 607:18 639:1 introducing 599:21 620:21 investigate 513:20 513:21 624:13,15 628:10 |
|--|--|--|---|

HIGHLY CONFIDENTIAL

[investigating - lasted]

| | | | |
|--|--|--|--|
| investigating 627:4 investment 608:13 investments 531:4 607:3,24 608:8 invariable 513:1 699:9 involve 630:15 involved 558:1,3 558:25 607:14,14 627:21 629:9 640:19 641:20,24 644:16 651:2 654:20 690:10 697:6 718:6,11 involvement 547:16 584:4 involves 658:14 issue 507:12 594:7 598:6 issues 580:24 620:9,23 it'll 541:9 569:23 593:21 item 651:17 652:20 655:15 iteration 680:3 | 724:2 john 502:18 506:11 josh 506:25 joshua 499:9 jsamra 499:18 jsc 496:4 497:4 judgment 534:21 june 496:16 497:18 506:1,6 721:23 722:3,5 justification 642:17,23 645:5 645:22 justify 645:15 646:17 648:4,16 649:13 650:1,8,20 656:10,19 | know 512:12,17 512:23 513:7,12 517:2,24 518:9 523:17 525:10,16 527:3 531:5 538:21,22 539:22 540:1,12 546:14 556:19 557:10,13 565:4,10,11,24,25 567:13 568:19 571:3,4 578:10,15 578:17 583:9,11 585:7 590:3,4 597:18 598:4,20 606:8 609:14 610:6 612:9 613:21 614:16 615:13 619:9,19 620:1 621:24 622:23 629:8 632:3,9 633:3 635:9,16,18,20 637:19 638:1 639:14 641:6 642:8,25 647:16 651:7 652:19 653:19 657:8,17 657:18 658:4 659:8,15,19,21,22 661:21 662:10,25 663:16 672:6,11 676:4,9 677:20 681:2,21 684:4 689:13 697:1 701:20 704:5,6,25 706:10,13 710:22 711:22 717:3 718:5 knowable 540:4 knowledge 682:13 | knowledgeable 540:14 601:7 612:3,11,23 known 511:7 606:17 626:18 708:8 knows 677:22,24 678:1 683:11 kp 602:16 603:25 606:8 609:22 611:24,24 612:2,9 614:13 619:9,12 625:1 629:13 631:13 633:13 668:24 707:11,15 707:20 708:2 710:7 712:14 715:16 kp's 605:15 611:10 625:23 709:23 |
| j | k | | l |
| jackie 541:11 571:13,16,17 660:3 jams 502:4 jamsadr.com 502:11 jan 611:12 january 515:9 685:14 job 496:24 515:21 516:7,11,13 517:9 543:8 709:11 711:17 722:5 | k 499:8 keep 529:19 569:8 682:22 keeping 582:6 keller 498:5 506:17,18 507:2 kellerrohrback.c... 498:14,15,16 key 620:9 kick 507:14 kids 569:22 kind 516:7 532:23 534:9 545:17 548:24 549:18 550:7 553:21 555:20 564:16 591:20 624:25 675:6 kinds 576:2 651:2 knew 554:18 619:19 | | labor 671:11 lack 676:21 lackman 634:19 635:13,14 636:12 lacks 658:20 land 604:23 643:21 language 676:24 679:6 large 513:3 707:21 710:9 largest 561:9 lasted 686:16 687:20 689:19 690:5,16 |

HIGHLY CONFIDENTIAL

[late - loeser]

| | | | |
|--|---|---------------------------|-------------------|
| late 550:7 555:21 564:16 676:5 711:23 | 588:22 589:1 590:20 591:1 628:4 654:7 | 707:19 | 595:8,20 596:1,17 |
| latest 637:24 | 695:25 722:15 | llp 499:5 500:5 | 596:22,24 597:3,5 |
| launch 541:24 | 723:4 724:4,7,10 | 501:5 | 597:11,16,24 |
| 544:4 554:19 | 724:13,16,19 | loading 636:3 | 598:20 599:2,4,10 |
| 565:3 574:23 | lines 587:5 | located 497:16 | 599:14,15,22 |
| launched 531:23 | linkedin 515:8 | location 496:15 | 600:11 601:9 |
| 608:18 638:11 | 516:9,14,20 | locked 722:12 | 602:9,11,15 603:7 |
| law 498:9 499:10 | links 647:3,4,5 | 723:1 | 603:15 606:24 |
| 500:8,17 501:7,15 | list 512:2,9 513:3 | loeser 498:6 503:5 | 607:23 608:6 |
| lawyers 534:9 | 553:8,22 554:2 | 506:16,16 507:1 | 612:2,12 613:2,16 |
| lead 570:21 | 555:2 565:20 | 508:5 512:12,24 | 614:1,7,16 615:2 |
| 645:21 | 583:5,9 674:23 | 513:19 514:6,13 | 616:3,8 617:3 |
| leadership 540:20 | 675:13 676:15 | 514:18 515:1,2 | 618:14,15,20 |
| 588:4,7 660:16 | 677:2,4,9,9,15 | 516:12 518:5 | 619:1 622:9 |
| leading 531:22 | 685:3 686:22 | 519:5,23 520:4,13 | 623:10,23 624:12 |
| leads 563:25 564:4 | 687:19 689:13,19 | 521:16 522:9 | 625:15 626:8 |
| leak 663:9 | 690:4,25 691:2,5 | 523:11,25 524:21 | 627:7,25 629:12 |
| leaning 515:23 | 692:1,3 695:14 | 525:4 526:4,10 | 630:2,5,6,13,25 |
| learn 511:3 | 696:23 699:2,18 | 527:8 528:11 | 631:7 632:4,21 |
| learned 511:5 | 699:20,22,25 | 529:3,19 530:8 | 633:25 634:16,22 |
| left 552:8 566:14 | 700:11 701:3 | 531:10 532:25 | 635:2,9 636:1 |
| 628:17,19 | 702:6,9,12 703:11 | 534:1 535:11 | 637:3,10 638:19 |
| legal 509:3 605:23 | 703:13 704:16,18 | 536:1,2,15,23 | 639:7,21 640:24 |
| 613:12 614:23 | 705:4,14,19 706:1 | 537:20 538:25 | 641:17 643:4 |
| 722:7 | 708:15,23,25 | 539:16 540:11 | 644:13,25 646:6 |
| lesley 499:6 | 709:16,20 710:23 | 541:8,16 542:1,2,4 | 647:6,14 648:2,13 |
| letters 628:4 | listed 553:17 | 542:10 543:2,7 | 648:25 649:21 |
| level 527:11 540:6 | 651:17 674:3 | 548:1 549:14 | 650:16 651:9 |
| 548:8 554:17 | 689:24 690:20,22 | 550:11 555:1 | 652:17 653:5,16 |
| 557:12 563:12 | 694:25 695:9 | 556:3,19 557:16 | 653:24 655:2,15 |
| levels 632:2 | 708:21,22 710:22 | 562:25 568:2 | 656:8,17 657:2,14 |
| levine 602:17 | lists 558:5 697:4 | 569:10,14,24 | 657:21 659:2,18 |
| light 682:14 | 699:4,20 703:3,6 | 570:1 574:24 | 659:24 660:1,23 |
| 694:22 | litigation 496:4 | 575:5,17 576:7,15 | 661:1,5,20,24 |
| likes 513:13 | 497:4 506:11 | 578:7 579:12,16 | 662:12 663:2,3 |
| limit 663:21 | 722:4 724:1 | 581:13,22 583:24 | 664:9,18 665:12 |
| limited 680:4 | little 542:8 593:10 | 584:11 585:21 | 665:22 666:3,16 |
| line 535:13,20 | 620:7 625:7 633:4 | 586:23 588:14 | 667:1,9,20 668:7 |
| 541:13 573:11,14 | 633:15 670:20 | 589:24 591:24 | 668:10,20,25 |
| | | 592:10 593:9,13 | 669:24 670:1,2 |
| | | 593:19 594:10,15 | 672:3,14,23 |

HIGHLY CONFIDENTIAL

[loeser - matter]

| | | | |
|--|---|---|---|
| 673:15,23 674:22 675:14,23 676:12 677:17 679:13 680:17 681:7,18 682:16 683:4,6 684:9,24 688:10 689:7,17 690:2,13 690:24 691:20,24 692:16 693:8 695:2,14 697:7 699:16,25 700:10 701:6,23 703:1,24 704:14 705:3,18 706:4,15,20 707:1 708:24 709:4,22 710:7,15,25 711:9 711:17 712:2,7 713:7,19 714:5,25 715:16 716:1,13 716:23 717:9,23 718:19 719:10,12 loeser's 535:16 log 617:11 680:7 716:18 717:6 logged 679:25 680:5,8,20 681:22 714:18 718:15,16 logging 680:13 login 531:23 552:9 552:21,22 logs 680:9 london 496:15 497:17 506:1,6 714:21 long 512:9 547:12 594:4 618:22 668:14 669:17 672:6,11 689:18 longer 554:24 555:7 559:16 605:7 665:13 | 666:5 687:23 690:16 702:4 look 514:16 515:23 524:22 541:25 542:5 560:21 563:9 603:10 608:10,16 608:23 622:9 624:12 628:17 636:19 637:11 648:14,18 649:1 651:9 661:19 662:24 671:4,6 672:7,9,12 678:4 686:21 687:1 688:11 709:6 looked 522:13 610:14 646:8 669:18 looking 543:19 545:8 582:23 603:25 631:20 647:20 657:10 669:13 670:25 672:24 684:25 692:2 looks 609:24 loose 519:20 los 502:9 lot 554:18 556:16 556:17,19 559:17 634:3 636:8,9,17 637:6 668:16 699:3 lots 513:12 low 625:16,18 626:1 lweaver 499:15 | m m 660:7 macdonell 502:18 506:11 machine 721:10 mad 592:16 main 604:22 maintain 531:12 532:5 536:4 649:14 maintained 604:16,20 609:10 698:4 maintenance 622:14 642:13 majority 670:4 making 530:15 533:10 540:2 541:1 546:16 568:16 614:15 617:14 621:24 622:2 manage 573:9,14 579:5 624:11 managed 517:4 544:24 563:6 567:11 management 660:4,8,10 666:18 manager 515:18 515:19 516:23 517:6 519:2 520:9 527:14 542:25 543:10 558:3 564:18 651:4,4 managers 526:24 543:12 564:9 managing 503:16 543:21 576:18 581:8,8 | manufacturer 525:18 map 567:25 mapping 710:5,6 maps 584:23 620:13 march 504:14 634:19 636:21 660:4,12 mark 509:10 510:2,2,4 marked 505:11 541:5 543:4 581:18 602:12 616:5 634:13 635:23 660:2 706:17 marketers 561:19 566:18,24 marketing 565:18 marne 602:17 604:1 master 502:6 507:3,6,7 533:14 533:19,23 534:4 534:14 535:9,10 535:24,25 595:11 595:18,25 596:3 596:12,16,20 597:1,4,9,15,17 598:3,10 599:1,3 719:9,18 match 542:5 562:7 matched 562:7 materials 719:8 matt 500:16 506:21,23 matter 506:9 532:9 540:14 601:22 |
|--|---|---|---|

HIGHLY CONFIDENTIAL

[matters - months]

| | | | |
|--|--|--|--|
| matters 671:5 697:13 matthew 499:7 mau 651:17,20,21 mbi 652:17,19 mbuongiorno 500:22 md 496:4 497:4 mdl 496:3 497:3 503:13,18,19,23 503:24 504:6,11 504:12,16,19,20 505:7,8 mean 511:20 513:11 514:19 525:2,17 526:20 526:22 528:5 529:4 531:15 532:8,21 537:19 544:13 547:4 548:4 550:2 558:23 563:14 574:2,4 579:22,22 590:8,9,22 592:4 597:21 598:1,8 599:4 600:21 607:6,24 608:14 612:7 613:8 614:6 614:7 625:19 627:3 628:13 632:1 640:13 650:23 654:14 666:23 673:16 675:21,23 680:16 683:14 698:5,6 702:19 709:3 meaning 547:15 652:3 meaningful 583:10,17 652:1 | means 519:14 525:24 532:3 533:15 545:15 547:15 548:5,6,10 565:25 588:12 590:14,23 592:13 593:14 594:17,25 595:10 596:5,10 597:13,18 598:1 598:15 599:24,25 601:23 606:8 608:3,5,12 613:17 625:2 627:3 630:21 632:20 642:8 653:3 654:2 654:6 656:3 664:11 667:3 meant 627:23 629:11 664:22 665:20 666:11,13 666:21 668:5 693:15 715:23,25 716:11 measures 652:14 mechanism 590:1 701:21 mechanisms 580:13 639:2 680:6 681:12 media 693:13,15 693:18 709:11 712:2,6 medium 548:3 meet 588:16 674:16 meetings 509:12 meets 563:20,20 melamed 499:7 506:23,24 508:13 534:6,13 661:25 662:13 | memory 546:23 mentioned 520:17 546:3 557:21 633:14 661:8 674:24 692:21 697:14 702:10 merchants 709:11 711:11,16 message 503:22 581:17 582:5 663:7 met 563:22 619:13 meta 502:17 503:23,24 510:5 582:4 621:7 method 560:21 561:3,5 565:20 metric 548:7 652:4 metrics 651:14 mid 548:24 549:18 549:18 550:7 551:6,7 553:21 554:18 555:21 566:3 middle 714:25 migration 582:21 mill 501:16 mind 535:5 549:23 573:17 576:20 603:1 636:23,24 mine 591:2 592:8 592:9 668:3 mining 591:3,6,16 minute 569:15 629:24 660:20 minutes 593:21 603:2 618:18 637:1 684:18 691:15 714:20 | missed 552:11 missing 556:16 708:25 709:3 mission 500:9 misstates 522:4 656:12 682:24 692:24 mistake 665:16 682:25 mistakes 663:15 663:22,24 664:11 664:19,23,24 665:5,19 666:11 667:21 misuse 626:19 mixcloud 518:20 mmelamed 499:16 mobile 561:19 565:16 566:17,22 567:11 568:8 modern 639:3 modifications 552:1 modified 513:16 modifier 552:7 modify 702:20 molaro 509:10 510:2,3,4 moment 581:15 602:16 651:11 669:10 714:23 momentarily 634:17 monday 496:16 497:18 506:1 money 524:7 671:11 month 628:18 monthly 651:22 months 579:21 628:5,5 685:12 |
|--|--|--|--|

HIGHLY CONFIDENTIAL

[months - object]

| | | | |
|---|---|---|--|
| 686:1,9,12,15,18 687:24 688:1,22 689:20,25,25 690:5,16 moratorium 609:18 620:20 621:3,4,9,12 morning 506:16 506:23 508:6 morris 581:16,23 582:2,3 583:1,8 584:11 585:22 586:23 587:7 588:15 motion 595:13 move 507:14 594:8 602:10 627:11 629:3 moving 620:24 msi 651:23 652:8 multiple 534:9 mute 507:10 | necessary 550:24 565:21 722:14 723:3 need 517:21 535:6 555:10 564:15 607:1 608:6 609:10 618:17 627:11 629:18 630:7 638:8 641:19 672:7 714:1 716:3 needed 551:2 558:5 564:19 598:4 662:2 690:14 needs 558:6 620:25 neither 721:17 net 548:6 605:18 netflix 708:11 networking 673:5 neutral 548:2,5 nevada 496:22 never 676:22 new 532:12 533:2 549:5 550:25 558:2 563:10,13 563:15 564:25 568:14 572:18 582:12 620:21,21 620:22 621:14 708:12 712:6 newsfeed 523:3,7 524:17 530:5 552:12 553:11,11 575:14 newsroom 505:4 706:22,23,24 707:8 noisy 569:23 | nokia 584:23 non 552:10 553:7 555:2,12 557:5 561:18 566:18,23 568:9 584:18 normally 586:20 northern 496:2 497:2 notating 722:15 723:4 note 572:10 686:21 714:19 719:1 noted 719:9,18,23 notes 514:7,10,14 631:1,6 668:25 669:8,11 720:4 notice 508:11 660:24 662:20 noticed 661:13 notices 662:14 noticing 506:15 notification 566:9 noting 558:16 november 621:6 now's 569:12 nps 548:2,3,5,5,6 548:12,13 550:13 nuance 557:10 number 503:9 504:2 505:2,12 526:15 532:13,14 536:9 538:5,6 541:21 542:5 543:17 550:2 561:23 573:22 578:5 607:15 610:21 616:25 617:7,8,14 621:23 624:6,10,10 632:23 638:9,9 | 649:6,8,10 659:12 665:15 666:6 668:19 689:8 690:4 708:21 722:15 723:4 numbering 670:19 678:8 numbers 542:3 545:10 561:6 631:20 635:4,6 nyt 604:22 |
| n | | | o |
| name 509:9 515:6 515:7,13 544:3 609:21 615:22 665:10,10 684:12 687:5 696:1,4 721:21 names 531:21 613:22 617:10 naming 590:5 nature 518:4 nearly 545:17,17 necessarily 547:10 550:16 557:3 576:23 580:10 678:18,18 679:3 679:22 681:8 717:21 718:17 | | | o'neil 541:4 634:18 636:14,16 o0o 506:3 719:25 oakland 499:13 oath 508:2,15,16 615:3 721:9 object 512:7,19 513:25 516:4 517:22,23 518:25 519:17,25 524:12 524:25 528:6,18 529:24 530:18 536:7 547:7 549:6 554:13 555:18 556:10 557:7 562:20 567:23 574:19 575:10,21 577:24 585:7 594:22 600:6 601:15 607:8 611:21 612:16 613:6 614:3 621:19 640:15 641:9 644:5 646:20,20 655:21 656:12 659:7 664:1 665:17,24 666:8 667:5,12,24 667:25 674:4 |

HIGHLY CONFIDENTIAL

[object - organization]

| | | | |
|---------------------------|--------------------------|--------------------|--------------------------|
| 681:10 684:2 | 713:22 714:6,11 | 546:25 548:1 | 710:15 711:9 |
| 688:2,3,24 689:10 | 716:2,4 | 549:19,22 550:18 | 712:7,22 713:7 |
| 690:6,6 692:25 | obtained 670:8 | 551:9 555:1 556:7 | 715:12 716:13 |
| 694:19 695:6 | 696:22 713:21 | 557:16 560:21 | 719:21 |
| 696:24 699:12 | obviously 514:23 | 561:17 562:25 | old 546:14 |
| 701:19 702:14 | 719:12 | 563:23 566:24 | once 535:13,20 |
| 703:17 704:4,20 | occur 630:15 | 569:1,4,16 570:1,7 | 594:10 661:9 |
| 705:7 706:8 | 637:20 638:3 | 570:14 571:11 | ones 512:14 |
| 708:18,19 710:2 | 645:25 | 573:8 576:7 | 518:11 611:14,19 |
| 710:11,12 711:5 | occurred 637:19 | 581:13 582:10 | 611:25 662:3 |
| 713:1,24 714:14 | 638:1 686:6 | 584:11,16 587:15 | onwards 510:12 |
| 715:20 716:6,7 | occurrence 660:19 | 588:15,24 589:3 | open 524:18 |
| 717:1,16 718:1 | october 503:11 | 594:3,15 598:9 | 529:12,14 530:2 |
| objection 517:16 | 541:12 542:13 | 600:11 601:9 | 552:10,22 |
| 520:7 567:23 | 543:9 696:15 | 602:10 603:21 | operate 511:18 |
| 581:6 583:18 | odd 670:20 | 604:13 605:20,25 | 512:18 559:23 |
| 584:1 585:4,9 | oem 525:16,20 | 606:24 607:23 | 560:8 |
| 586:19 588:9 | 566:18 | 608:16,23 611:9 | operating 671:13 |
| 589:20 591:18 | oems 568:8 | 616:2 620:9,15 | 671:19 |
| 592:1 594:21 | off.login 574:8 | 624:12 627:7 | operation 548:15 |
| 614:4,22 616:23 | 617:9 | 628:9 629:16 | operations 503:16 |
| 618:5 623:15,25 | offer 529:15 | 630:13,25 631:5 | 543:21 545:11 |
| 629:4,25 630:9 | 671:21 | 631:10,18 634:9 | 548:17 |
| 638:22 664:14 | offered 541:17 | 635:9 637:8,10,21 | operative 683:24 |
| 675:18,25 676:6 | offhand 513:7 | 640:9 644:25 | opine 613:13,17 |
| 679:10 680:14 | office 569:22 | 645:20 646:6 | 666:25 |
| 699:11,19 711:19 | 722:11 | 648:2,13,18 | opportunities |
| objections 634:3 | official 515:21 | 649:21 651:23 | 524:22 |
| 647:24 648:6 | 516:7,11,25 | 653:5 659:2 661:3 | opportunity |
| 650:12,24 653:18 | officially 548:25 | 662:18 663:18 | 508:20,22 661:19 |
| 656:22 657:7 | oh 579:14 636:10 | 670:2,16 672:2,16 | 662:8 |
| 666:19 668:12 | 658:2 | 672:17,23 673:23 | opposed 522:20 |
| 689:21 690:17 | okay 506:5 507:6 | 674:22 677:7 | 594:14 |
| 705:21 709:1 | 511:16 513:19 | 678:4 682:16 | ops 542:17 550:20 |
| 710:20 711:14,24 | 514:6,12 515:1,8 | 684:21 686:16 | options 629:2 |
| 712:4 716:16 | 515:17 516:12 | 691:22,24 692:21 | order 563:17,18 |
| obligation 599:5,9 | 521:3 525:19 | 694:16 698:3 | 582:24 617:11 |
| obligations 624:17 | 526:5 528:3 | 699:16,25 700:13 | 648:16 716:4 |
| obtain 540:18 | 534:14 535:23 | 701:17 702:6 | oregon 496:22 |
| 599:8 665:14 | 536:15,18 540:11 | 704:14 706:15 | organization |
| 666:5 713:15,20 | 541:8 542:7 545:7 | 707:7 709:22 | 521:12 642:12 |

HIGHLY CONFIDENTIAL

[organizations - partners]

| | | | |
|---|---|---|---|
| organizations 519:11 520:10 693:18 original 525:18 721:14 722:10,21 originally 607:21 os 566:18 os's 568:8 outcome 548:11 outlines 604:3 outputs 699:15 outreach 565:3,11 outset 629:13 outside 527:1 568:3 592:2 600:9 600:22 607:9 611:22 612:15 613:19 614:4,10 621:20 622:25 623:15,25 624:22 625:20 626:23 627:18 629:5,22 630:18 631:23 632:7 638:13 639:10,12 640:16 642:24 644:5,20 646:1,19 647:11 648:24 649:17 652:12,22 653:12 654:16 655:5,21 656:13 658:20 664:2,16 666:8 667:4,12,25 673:9 673:18 674:5,25 675:18 676:2 677:11 681:1 688:24 689:10 692:11 694:19 695:6 696:24 699:11 700:7,24 702:15 703:17 | 704:3,20 705:7 706:8 709:18 710:1,11 711:4 712:25 715:21 717:17 718:2 outsourced 671:10 overall 529:2 538:7 539:12 549:13 550:10 overlapping 534:9 ownership 558:13 owning 663:15 p p.m. 497:18 506:2 506:6 526:6,9 536:19,22 569:17 569:20 634:9,12 672:18,21 714:21 718:22,25 719:22 719:23 p1 611:15 page 501:16 503:3 503:9 504:2 505:2 505:12 541:19 545:9 546:15 570:2 579:15 632:22 646:10 651:10,11,12 658:14 670:3,17 670:21 671:1,1 672:24 673:3 676:13,14 678:4,6 678:8 684:10,25 684:25 686:22,24 686:25 688:11 690:24,25 691:19 691:20 692:3 694:6 695:24 700:10 709:6 712:13 722:15 723:4 724:4,7,10 | 724:13,16,19 pages 496:25 512:5,25 514:9 637:5 668:15,17 673:3 677:1 684:9 686:24 695:16 699:3,7 702:13,19 705:5 722:14,17 722:17 723:3,6,6 pair 619:17 625:12 626:9,21 pairs 619:7,13 620:4 623:19 624:7,16,21 627:14 629:14,19 630:7 632:24,25 633:9,10,21 palo 501:17 pandora 708:12 paper 593:20,25 paragraph 671:4 678:11 685:1,2 686:23 part 538:23 539:12 553:15,23 566:6 576:5 579:23 610:8 643:1 693:22 particular 550:14 555:2,13 556:21 596:7 637:5 639:8 653:9 679:8 particularly 523:18 parties 498:2 499:2 500:2 501:2 502:2 526:15 546:17 591:12 638:8,11 671:10 682:19 684:12,15 719:2 | partner 515:11,18 515:19 517:5,6,12 517:15 518:1,10 519:2,7,10,14,20 520:2,9,12,14,18 520:22 521:4,11 522:2 525:6,8,13 529:6 530:15,17 536:14 538:14,22 539:2,4,11,14 540:13 542:25 543:10,12 564:9 564:18,19 567:17 567:20,25 582:3 632:14 671:3 673:17,24 674:2 675:9,9,10,15,21 676:19 678:16,17 679:2 692:2,10 705:12,15,24 712:23 partner's 528:13 531:11 532:4 536:3,4 partnered 521:12 partnering 521:13 530:22 partners 505:7 516:24 517:1,2 518:6,6,16,23 519:16,16,24 520:5 521:1,1,19 521:19 522:7 523:12 524:23 525:13,14 526:12 526:17 527:9,17 527:21 528:4,10 528:12,15 532:17 532:19,22 533:4,6 533:10 536:25 537:1,7 544:23 |
|---|---|---|---|

HIGHLY CONFIDENTIAL

[partners - pertained]

| | | | |
|--------------------------|-------------------------|-------------------------|--------------------------|
| 546:8 565:9 | 544:12 545:11 | 698:18 708:3,4,8 | 611:8 685:6 |
| 566:21,22,25 | 548:17 550:6,20 | 710:8 713:16,22 | 687:14 688:22,23 |
| 567:9,14 568:4,6 | 551:6 558:6 559:1 | 716:10,14 718:11 | 689:8 702:22 |
| 569:9 574:18 | 559:20,21 562:24 | people's 663:16 | 703:22,23 704:11 |
| 575:9,19 583:4 | 563:8 564:13,15 | 707:22 710:10 | 714:8,11 716:3 |
| 604:16 605:5 | 565:8,13,14,15,16 | 712:16 715:18 | perms 590:20,22 |
| 606:25 610:1 | 567:3,11,12 588:2 | perceived 612:9 | 590:23 |
| 628:21,23 631:9 | 588:2,3 604:5 | percent 562:8 | person 514:5 |
| 631:11,12,14,17 | 612:11 616:19 | 643:20 670:15 | 540:12,15 547:9 |
| 631:19,19 632:1,5 | 622:10,11,22 | 702:5 713:10 | 547:13 548:23 |
| 632:6,20 633:7,11 | 632:11 671:14 | perform 611:5 | 550:6 551:6 |
| 671:8,16,17,20,23 | 712:15 715:17 | period 676:17,18 | 592:20 593:7 |
| 672:25 673:2,8,12 | 716:2 | 678:20 679:12,14 | 600:17 612:3,11 |
| 673:20 674:1,15 | parts 669:18 | 684:12,14 714:5 | 650:5 651:4 |
| 674:17,23 675:21 | party 506:15 | 722:18 723:7 | 668:23 682:7,11 |
| 675:24 676:11,16 | 531:2 670:6 691:6 | periods 532:24 | personal 517:8,17 |
| 677:3,5,10,14,18 | 691:8 693:5 | 566:10 | 517:25 523:20 |
| 678:14 692:3,14 | 695:17,20 700:1,4 | perjury 507:20 | 527:11 528:22 |
| 692:22,22 693:6 | 700:13,16 721:19 | 720:2 722:17 | 540:6 545:3 |
| 694:18,24 695:4 | passage 712:19 | 723:6 | 547:16 553:9 |
| 695:10,16 707:13 | passing 591:23 | permission 574:6 | 554:17 562:12 |
| 708:8,16 709:7,15 | passwords 617:10 | 592:17,21 593:4,8 | 563:12 573:19 |
| 709:24 710:16,18 | patience 627:9 | 600:14,17 601:24 | 576:22 578:17 |
| 711:12 713:8,19 | pause 546:2 | 602:4 610:22 | 585:12 591:7 |
| 713:21,23 716:9 | pausing 701:25 | 685:5 712:16,24 | 592:5 601:4,5,17 |
| partnership 515:3 | payments 552:10 | 713:6 715:18 | 601:19 615:14 |
| 517:3 522:21 | 553:1,2 | 716:3,5,12,20 | 622:4 627:22 |
| 524:21 525:5,6 | pdf 603:8,13 | 717:24 | 633:18 638:16 |
| 526:23 527:9 | 722:12 723:1 | permissions | 639:14 642:10 |
| 531:9 540:21 | penalty 507:20 | 510:25 511:7 | 643:2 653:2 655:9 |
| 542:17 544:15 | 720:2 722:16 | 532:14,18 533:3 | 675:6 |
| 548:15 588:6 | 723:5 | 536:5 537:9 | personalization |
| partnerships | people 513:17 | 540:10 545:4 | 604:18 605:17 |
| 503:15 504:10 | 523:1,8 538:5,6 | 552:1,18 553:10 | personally 614:19 |
| 515:5,14,16 516:1 | 540:21 574:12 | 554:9 555:14 | 614:20 615:23,24 |
| 516:17,17 519:12 | 588:10,23 601:2,6 | 557:15 559:16,24 | 625:11 |
| 519:22 521:18,22 | 602:16 605:4 | 560:20 574:1,21 | perspective 622:4 |
| 525:11,22 527:15 | 607:14 612:10 | 575:14 577:2,12 | 655:10 664:5 |
| 527:24 531:4,8 | 613:22 638:9 | 582:19 590:24 | 675:7 694:17 |
| 540:20 543:1,11 | 642:1 663:23 | 601:24 602:1,3 | pertained 522:19 |
| 543:14,16,21 | 671:21 682:12 | 607:16 610:20 | |

HIGHLY CONFIDENTIAL

[pertains - preapproving]

| | | | |
|---------------------------------|-------------------------------|---|---------------------------|
| pertains 577:1 721:13 | plans 622:22 624:14 | please 506:14,15 507:17 547:1 | 528:1 547:18 |
| pg 645:21 | platform 503:17 | 587:23 590:25 | 562:7 563:20 |
| phase 611:12 | 509:17 511:2 | 604:1 606:6 637:3 | 578:10 585:14 |
| phrase 528:20 | 515:5,14 516:17 | 663:1,1 672:12 | 605:18 631:25 |
| 552:4 567:20,21 | 517:12 518:3,14 | 687:22 705:17 | 651:6 670:13 |
| 567:25 591:22 | 519:4 521:15,25 | pluck 598:13 | 678:1 699:1 705:2 |
| 666:11,13 668:6 | 527:18,21 528:10 | plug 552:11 553:5 | 706:12 |
| 675:8 702:18 | 528:14,15,21 | 553:6 | post 523:2 571:20 |
| phrases 567:7 | 531:13,14,17,19 | pmd 561:19 | 603:9 682:16 |
| phuntso 501:14 | 532:3,6,12 533:2 | 565:18 | 683:6,10,12 |
| 506:22 | 536:6 542:17 | pmds 566:18,24 | 706:22 707:11 |
| physically 564:22 | 543:1,10,14,16,22 | point 515:3,17 | 710:14 711:12 |
| 698:6 | 544:2,12,25 548:8 | 535:22 546:21 | 712:1,10 715:24 |
| pick 686:24 | 548:9 549:5 | 551:6 582:17,21 | 715:24 718:4,8 |
| 688:10 | 551:10,14,17,17 | 583:15 607:15 | posted 652:5 |
| picture 615:22 | 551:20,21,24 | 609:1 610:19 | posts 699:10 |
| piece 593:20,25 | 552:2,5 553:15,18 | 628:15 644:22 | 707:10 709:24 |
| pii 611:14,20,25 | 553:23,24 554:1 | 669:6 680:18 | potential 524:22 |
| 614:2,6,16,18 | 555:5,17 557:2 | 685:6 701:24 | 525:13,13 551:2 |
| 615:1,1,4,8,15,18 | 558:4 559:7 | points 545:14 | 556:14 570:16 |
| 615:21 619:7,14 | 565:14 567:5,12 | 548:2 625:16 | 617:1 630:14 |
| 654:10,24 655:3 | 574:17,18 575:8,9 | 691:9 | potentially 520:10 |
| 655:10,13,14 | 582:12,20 588:4,6 | policies 528:21 | 605:9 616:15 |
| ping 641:25 | 592:7 600:25 | 600:9,25 601:1,21 | 685:9 699:23 |
| pinging 644:18 | 602:1 606:13 | 606:13 637:25 | power 715:5 |
| pissed 591:1,4,14 | 612:11,24 632:10 | 639:4 | powered 590:2 |
| place 565:21 585:2 | 637:14,22 640:3 | policy 509:18 | powerpoint 504:8 |
| 585:2,19,20 | 640:25 644:2 | 597:16 599:16,21 | 544:7,9,17 616:4,9 |
| 621:10,12 647:21 | 658:3 671:12 | 600:12 613:12,16 | 629:12 |
| 680:6 681:12 | 674:13 682:3 | 680:24 681:3 | pptx 602:21 |
| 684:4 707:1 721:6 | 690:10 692:23 | popular 708:11 | practice 516:13 |
| placed 601:3 | 693:2,4,7,9,12,14 | populate 696:23 | 586:16 |
| 613:13 615:16 | 693:18,20,23,25 | populated 697:3 | practices 621:15 |
| plaintiff's 668:12 | 694:5,8,10,15 | portions 719:16 | 622:7 |
| plaintiffs 497:16 | 697:21 701:11 | position 587:14 | pre 572:25,25 |
| 498:4 499:4 | platforms 502:17 | 598:6 667:10,21 | preapproval |
| 506:24 676:17,20 | 575:25 643:6 | positive 548:3,13 | 572:23,25 |
| 704:15 | 707:16 708:6 | possibility 525:7 | preapprove |
| plan 583:25 584:3 | playbook 611:15 | possible 514:14 | 568:14,21 572:18 |
| | | 518:11 527:22 | preapproving |
| | | | 558:1 |

HIGHLY CONFIDENTIAL

[precise - proper]

| | | | |
|--|---|---|---|
| precise 610:7 689:4 698:23 precisely 565:25 619:19 preexisted 536:10 preloading 525:20 preparation 540:24 605:4 616:17 629:9 659:3 prepare 508:20,24 509:5 514:10 544:6,9 616:12 690:12 prepared 542:21 543:20 664:6,12 665:22 666:24 667:17 718:6 preparing 544:17 prescribed 561:23 present 502:15 592:24 641:12 679:14 presentation 504:8 presented 617:15 presume 698:17 pretty 512:9 552:20 620:13 623:8 630:19 711:10 717:10 prevented 621:7 previous 511:14 557:21,22 572:11 618:7 previously 505:11 509:1 511:11 562:4 566:7 574:21 581:5 591:10 616:9 648:8 652:15 | 656:2 660:2 662:15 669:15 680:13,15 689:25 692:21 primarily 510:11 562:24 623:18 primary 550:17 principles 563:1,3 prior 647:3,7,9 648:3 651:12 679:18 680:1,2 681:9 721:8 privacy 506:10 578:4 private 503:17 504:5,9 539:20 542:17 543:22 544:25 551:14,17 551:21 552:5 554:1 555:5,17 573:22 574:18 575:9,13,15,25 576:24 577:19 582:20 602:19,21 602:22 604:3,16 605:7 606:25 607:7,16 608:20 609:9,25 610:2,11 610:14,16,22 611:6,13,19 612:14 613:5,10 613:18 616:19,21 617:1,8,19,20,22 618:12 619:6,16 619:21 620:7,16 620:22 622:12,14 623:11,18 624:11 624:16,20 625:12 626:21 629:14,17 632:23 633:8,15 655:20 656:10,20 | 670:5 677:19,21 691:8 692:14 695:19 700:3,15 701:2,2,4,17 702:11 703:21 704:12 privately 554:11 privilege 606:4 probably 525:23 540:21 556:13 594:1 599:7 604:21 621:22 632:11 715:2,14 problem 569:24 604:3,11,13 605:20,25 606:24 619:3 662:21 problems 620:11 procedure 722:19 722:20 procedures 639:5 proceed 564:8 proceedings 721:5 721:8,9,15 process 504:18 524:6 549:15 566:6 570:9,23 571:1,5,9,21,24 572:1,5,23,25 580:12,23 581:10 582:18 624:4 636:20 637:24 638:5,7,12,15,20 640:20 641:15,18 641:20,24 643:1 643:11 646:3 658:5,7,13,24 659:1,5,10,19 685:21 686:7 processes 577:5 621:15 | produce 599:6 699:15 produced 669:1 product 516:1,23 526:24 558:3 564:21 591:2,5,16 609:9 620:18,21 642:12 643:6 645:10 646:10 651:4 654:24 656:4 657:4,6 658:15,16,18 659:6 products 530:11 530:12 637:14,22 640:3,25 642:7 643:21 644:2 645:14 646:16 647:22 649:25 650:19 658:3,9 659:4 671:20 707:3,6 professional 497:21 721:2 profile 496:4 497:4 506:10 524:20 615:22 722:4 724:1 program 549:13 550:10 programs 707:16 project 609:11,14 609:15,16,20 610:9 promote 523:22 524:3 promoter 548:6 prompted 621:17 621:22 639:8 proper 570:17 573:12 579:18 |
|--|---|---|---|

HIGHLY CONFIDENTIAL

[proper - questions]

| | | | |
|---|--|---|---|
| 580:18,20 properly 578:1,6 595:17 637:25 proportions 644:11 proposal 504:19 577:4 636:20 propose 564:19 proposed 544:3,11 547:19 550:5 551:2 556:14 558:11 559:9 566:3 568:18,20 570:16 572:17,21 580:9 proposing 549:10 protect 545:20 546:3 protocol 534:11 600:8 provide 513:22 519:16,24 520:6 520:15 521:20 522:8,10,21 523:3 524:10 529:6 536:24 537:1 586:17 587:21 614:20 617:16 623:6,14 632:11 648:16 649:13 665:6 668:4 690:14 692:12,15 704:15 707:2 710:17 719:5 provided 521:23 523:5 532:19 533:5,10 536:13 572:6 600:7 658:15 660:24 661:16,21,21 662:15 678:15 | 680:2 687:24 692:19 695:15 697:10 703:13 704:7 722:19 723:8 provides 522:2 529:4 626:4 647:20 658:14 671:3 providing 546:7 588:18 661:14 669:21,23 707:5 ps12n 503:12,15 541:13 542:17 543:21 544:1,2 545:11 550:20 558:2,22 560:14 568:14,21 569:2 571:20 572:4,19 public 551:10,17 551:20,24 552:2,9 553:15,18,23,24 555:23 557:14 559:7,16,24 560:8 560:19 571:6 574:17 575:8 577:11,18 582:11 582:17,19,22 589:10,12 590:16 618:8 701:7 707:9 709:23 711:11 publication 712:6 publicly 532:15 537:9 539:20 554:10,24 555:4,7 556:2 701:13,14 707:10 710:8 publish 529:16 published 572:13 publishes 707:10 | pull 659:24 pulled 538:20 670:10 688:7 689:3,14 701:4 pulling 697:6 purported 595:15 purpose 598:24 607:17,21 639:5 648:10 650:7 707:7 purposes 553:1 653:25 655:19 pursuant 671:13 pursuing 531:9 put 508:15 592:10 593:20 594:1 598:18 603:7 621:9,12 625:12 653:14 669:24 706:15 708:3 putting 594:23 pwangdra 501:19 q q&a 660:11,14,17 661:5,10 q1 663:7 qualitative 590:11 quantity 590:12 590:14 queried 679:17 query 678:17 679:2 691:9 695:20 698:12,14 698:15,19 700:4 700:16 question 518:9 520:3,19 523:15 525:15 530:21 531:25 532:20 533:1,1,8,12,18,20 533:22 534:17,19 | 534:20,20,21,23 534:25 535:2,3,7 535:12,15,18,22 537:2,25 538:1,17 539:8,22,23 540:15 574:25 575:1,2 576:9,14 576:16 577:17 578:8 585:22 587:4,23 592:5 593:11 595:4,19 595:24 599:22 600:1 607:11 608:9 612:5,8 613:3,25 615:12 625:23 626:22 628:1 632:21 633:3 634:2 641:11,11,14 643:3 646:5 648:12 656:15 657:15,20 658:10 659:22 664:12 665:11,23 666:1 666:15 675:5 677:23 678:3 682:1 683:1,5 684:22 688:6 689:6,16 704:4 705:13,14,17 716:7 717:10 questionable 624:16,20 625:12 626:9,20 627:3 629:19 630:7 questioning 533:25 535:14,21 662:6 714:22 715:1,3 questions 508:10 514:11 521:17 |
|---|--|---|---|

HIGHLY CONFIDENTIAL

[questions - referencing]

| | | | |
|--|---|---|---|
| 534:2,7,10 570:3 583:2 631:2,22 634:5 636:18 644:17,24 662:21 663:2 665:7 668:15 672:13 678:11 690:15 691:3 702:25 707:21 quick 637:8 quickly 541:19,20 618:16,21 quite 553:13 578:19 636:9 715:3 quotation 670:4 quote 553:15 | 588:19,20 590:25 592:12,15 593:1 593:10 595:8 602:3 603:23 604:14,25 605:20 607:4,5 608:18 609:12,13 610:3,4 611:16 616:12 622:16,17,22 623:4 624:18,19 627:16 629:3 631:1,5 636:22,23 637:13 640:1,9 642:19,20 643:14 645:18,19,23,24 650:16 663:13,18 669:19 671:5,25 672:1 678:10,24 678:25 684:19 685:1 686:23 691:2,13,14,23,25 696:20,21 702:6,7 720:2 reading 529:1,13 605:12 619:5 635:4 656:24 691:19,20 700:9 722:23 723:9 ready 662:3,11,24 672:10 really 528:23 541:19 552:7 592:5 599:23 601:9 703:2 reask 535:12 630:3 reason 590:21 599:17 724:6,9,12 724:15,18,21 reasonable 529:15 591:15,25 592:6 | 595:7 647:1 reasonably 553:22 reasons 607:18 618:8 638:17,19 638:21,25 639:20 690:4 706:5 708:2 rebecca 496:21 497:20 592:16 721:1,24 recall 511:12 515:13 527:12,23 538:19,22 539:10 540:5,6 544:8,18 544:19,20 547:14 561:14,22,25 562:3,13 563:3 565:6 566:7 570:25 571:5 656:8,18 661:10 669:4,5,22 709:9 receive 524:7 542:6 671:21 received 522:23 523:12 538:13 662:20 685:13 receives 602:6 receiving 636:16 recess 526:7 536:20 569:18 634:10 672:19 718:23 recipients 542:23 reciprocity 528:4 528:17,20 529:22 530:2 546:12 recollection 512:4 546:15 553:9 562:13 568:25 572:15 577:4 585:12,17 589:5 624:5 | recommendation 611:10 recommendations 563:24 708:10 record 506:6 516:13 526:4,6,9 535:15 536:16,17 536:19,22 543:25 558:17 568:18 569:17,20 582:6 596:19,21 598:10 634:1,6,12,25 650:17 661:13 662:12 668:10 670:23 672:15,17 672:21,22 684:23 706:5,14 715:9 718:20,21,24 719:2,11,19,20,22 721:9,12 records 682:5 683:22 706:13 reduce 624:6 reducing 504:9 616:18 refer 515:14 556:13 557:19,20 570:13 571:17 572:16 588:1 598:22 601:25 626:3,5 629:20 633:9 664:24 671:15 675:10 reference 551:10 551:13 596:6 628:5 670:1 referenced 691:1 722:6 references 531:19 referencing 527:7 669:7 |
| r | | | |
| r 724:3,3 r&s 723:1,9 raft 537:10 raise 507:16 range 537:16 538:10 552:25 553:13 574:4,20 575:24 576:4,23 577:5,8 615:20 648:1 ranges 678:21 ranked 652:6 rating 619:11 reaction 591:15,25 read 513:2 545:14 546:15,25 552:23 558:19 569:5 570:7 571:18 572:7 573:8 575:1 575:5 579:17 582:25 583:6,7,13 583:14 584:14,15 584:16 587:1,2,3 | | | |

HIGHLY CONFIDENTIAL

[referred - responsible]

| | | | |
|---|---|---|---|
| referred 515:15 516:16 517:7 520:25 566:17 568:7 576:3 632:23 635:20 646:9 651:12 663:24 665:4 666:17 669:2 674:15 686:22 690:1 711:1 referring 532:23 545:3 552:4 553:9 553:10,11 556:12 559:8 576:23 585:15 605:15 606:10 609:16,18 609:20 619:23 620:4,6 628:16 630:22 631:13,16 632:3 633:13,19 633:20 647:9 649:24 656:1 664:5 666:12 668:23 679:12 684:24 688:8 701:1 711:8 refers 528:17,23 531:20 533:1,2,3 544:2 546:12 552:20 553:1,3,5,7 572:14,14 587:24 619:20 629:13,15 629:18 630:6 647:7 651:21,25 693:4 reflect 557:6 reflected 631:20 632:25 633:5,10 673:2 reflecting 553:14 591:9 | reflective 644:10 reflects 535:5 refresh 512:3 regain 663:16 regan 501:6 506:22 regard 508:14 526:22 540:12 555:12 557:5 576:9 628:11 678:13 registered 497:21 721:1 regular 545:5 551:24 554:25 555:8 577:20 660:19 regularly 660:15 relate 534:2 548:15 618:3 654:15 664:19 related 509:19,22 653:15,16,20 676:18 relates 496:6 497:6 593:2 634:5 relating 555:14 667:11 relationship 528:4 relationships 524:23 525:8 567:2 relative 721:18 relatively 513:3 519:20 563:6 567:7 591:20 released 722:21 relevant 676:16 678:20 rely 520:20 | relying 589:5 604:17 remain 574:14 remember 516:8 562:6 573:20 remembering 551:22 554:17 591:7 remind 691:18 remotely 496:14 497:18 721:6 removal 513:4 remove 608:24 609:4 removed 511:1 513:14 574:16 575:7 610:20 625:8 714:8 removing 685:19 render 553:4 repeat 592:22 repeatedly 683:21 reported 496:14 496:20 497:18 reporter 497:20 497:21,22 506:13 507:14,16,19 541:6 543:5 581:19 602:13 616:6 634:14 635:24 706:18 713:18 721:2,3,3 represent 545:8 548:22 580:10 678:7 representation 549:2 representative 496:13 535:19 551:4 557:4 560:3 596:6 598:7 | 626:25 represented 540:24 582:8 representing 587:13 594:5 596:13,23 represents 551:1 556:17 557:9,23 568:24 580:8 581:25 requested 685:4 721:16 723:1,9,10 require 520:20 632:1 required 566:11 600:7 671:11 requirement 595:23 597:8 requirements 571:21 requires 531:4 resolve 507:12 resources 531:6 respect 598:12 662:20 respective 645:21 response 585:22 587:4 670:20,22 670:25 671:2,5 673:1 674:3 678:9 678:9 685:2 691:1 699:5 responses 668:8 668:11,21 669:3 669:14,21,23 670:13,18 671:7 672:24 676:20 684:8 703:20 709:21 711:2 responsible 642:12 647:23 |
|---|---|---|---|

HIGHLY CONFIDENTIAL

[responsible - rough]

| | | | |
|---|--|---|---|
| 648:17 651:5 662:15 rest 510:15,18,20 558:14 result 626:20 658:8,25 659:6,9 659:19 resulted 544:4 resulting 659:16 results 529:22 589:13 659:16 resumed 508:4 retain 545:25 547:2,5 569:8 610:1 642:16,22 645:4 648:5,17 656:10,20 657:3 658:18 659:5 681:6 retained 637:16 637:21 640:7 643:13 644:11 680:22 retaining 645:15 646:17 650:1,20 retention 582:9 680:8,19,24 681:3 704:24 retroactively 637:23 return 546:8 589:11 722:17 723:6 returned 678:19 679:3 rev 504:16 634:20 reveal 606:3 revealing 606:5 revenue 523:11 538:13,20,22 539:2,11,13 540:7 | 540:16,25 652:20 653:3,4,6,8,25 654:2,6 revert 626:2 review 504:5 508:20,22 509:3 563:23 591:20 602:19,21,22 604:3 607:2 608:7 608:19 611:1,6,13 616:9 620:17 622:13 623:2 627:14 628:6,20 628:23 630:16 631:8,19 632:2 636:7 637:4 643:7 648:20 660:21 662:8 669:6 719:4 721:15 722:8,10 722:13 723:2 reviewed 564:3,6 572:13 603:19 616:16 636:4 638:9 661:4 669:14 690:8 710:23 reviewing 557:22 562:6 603:18 623:18 641:13 668:16 718:4 719:6,15 reviews 611:15 revocation 676:21 revoked 676:22 696:12 right 507:17 513:24 514:24 515:4 520:24 521:21 524:1 530:17 531:13 532:12,19 536:6 | 538:16 541:17 542:14,18,19 548:16 549:1,8,12 549:15,19 550:8 551:9,14,18 553:19 554:12 555:3,5,16 556:4 560:2 561:21 564:24 565:5 568:15 569:2,8 572:4,19 574:18 575:20 576:14 577:9 578:2,25 581:24 582:13,20 583:17,19,22,25 584:3 585:2,24 586:3,14,25 587:10,17,25 588:8,14 596:9 597:15 608:25 609:5 611:3 615:10 616:10,19 618:17 620:12 624:8,18,19 627:15 628:3 629:14,19 630:8 630:16 631:9,12 635:1 642:4 644:4 645:7,11 646:18 647:23 649:1,1,2,6 649:14 650:10 651:15,18,19 656:11,21 657:6 657:23 658:19 661:2,7 677:23 680:17 682:19 683:8 685:18 686:2,13,18 688:23 690:16 692:23 697:17 700:6,23 704:2,19 | 707:13 708:13 710:10,19 711:3 712:24 713:9,17 713:23 714:13 716:5,15,25 717:9 717:15 719:1 rigorous 580:22 581:4 rigorously 655:11 ring 500:7 risk 504:9 573:9 573:15,16 616:18 617:18 622:15 639:23 640:3,11 640:13 641:1,8 643:8 644:4 645:17 646:18 650:3,9,22 654:7 654:15 656:11,21 657:3 risks 576:18 616:21 617:1,8,14 617:20 618:3 risky 655:3,13 road 501:16 rob 634:18,23 635:8 rog 687:22 709:21 rohrback 498:5 506:17,18 507:2 role 669:20,23 roll 642:6 rolled 645:11 romano 496:21 497:20 721:1,24 rooney 660:3 rosemarie 500:7 ross 500:18 rotten 604:20 rough 621:5 |
|---|--|---|---|

HIGHLY CONFIDENTIAL

[row - scope]

| | | | |
|---------------------------|------------------------|-------------------|-------------------------|
| row 628:15 654:10 | 670:20 678:8 | 618:5,15,25 | 710:20 711:4,14 |
| rpr 496:21 721:24 | 679:1 688:15,18 | 621:19 622:25 | 711:19,22 712:4 |
| rring 500:14 | 696:14 | 623:15,25 624:22 | 712:25 713:24 |
| rule 595:14,19 | scan 637:1,9 | 625:20 626:22 | 714:14,19 715:20 |
| rules 723:8 | schedule 722:10 | 627:18 629:4,21 | 716:6,16 717:1,16 |
| rumble 586:24 | schema 698:24 | 630:9,17 631:22 | 718:1 719:1,17 |
| 587:8 | schwing 500:6 | 632:7 634:2,24 | schwing's 599:12 |
| ryan 563:25 | 506:19,19 512:7 | 638:13,22 639:10 | scientist 510:4 |
| résumé 515:24,25 | 512:19 513:10,25 | 639:12 640:15 | scope 523:13 |
| s | 514:15,22 516:4 | 641:9 642:24 | 527:1,6 528:6,9 |
| s 503:8 504:1 | 517:16,19 518:25 | 644:5,20 646:1,19 | 591:18 592:2 |
| 505:1 724:3 | 519:17,25 520:7 | 647:10,24 648:6 | 600:9,22 601:15 |
| sample 657:10 | 521:8 522:4,24 | 648:21,23 649:16 | 607:9 611:22 |
| samra 499:9 | 523:13 524:12,25 | 650:12,24 652:12 | 612:15 613:6,19 |
| 506:25 | 527:1 528:6,18 | 652:22 653:11,18 | 614:4,10 621:19 |
| san 500:11 | 529:8,24 530:18 | 654:16 655:5,21 | 621:20 622:25 |
| satisfaction 548:9 | 532:20 533:12,23 | 656:12,22 657:7 | 623:16 624:1,22 |
| satisfies 599:11 | 534:6 535:14,21 | 657:16 658:20 | 625:20 626:23 |
| 634:7 | 535:24 536:7 | 659:7 660:23 | 627:18 629:5,22 |
| satisfy 599:19 | 537:2 538:17 | 661:12,23,25 | 630:18 631:23 |
| saw 629:8 699:2 | 539:7,23 541:18 | 662:18 664:1,14 | 632:7 634:3 |
| saying 522:1 597:9 | 542:4,7 547:7 | 664:16 665:8,17 | 638:13 639:10,13 |
| 597:20 615:2 | 549:6,25 554:13 | 665:24 666:8,19 | 640:16 642:24 |
| 618:17 670:23 | 555:18 556:10 | 667:4,12,24 | 644:6,20 646:1,19 |
| says 542:16 | 557:7 562:20 | 668:18 672:3,16 | 647:11 648:24 |
| 548:17 552:9 | 567:23 574:19 | 673:9,18 674:4,25 | 649:17 652:12,22 |
| 553:25 554:2 | 575:4,10,21 | 675:17,25 676:2 | 653:12 654:17 |
| 570:8,9 571:18,20 | 576:11 577:24 | 677:11 679:10 | 655:5,21 656:13 |
| 572:20 573:9 | 581:6 583:18 | 680:14 681:1,10 | 658:21 664:2,16 |
| 583:1 585:25 | 584:1 585:4,6 | 682:9,21,24 684:2 | 666:9 667:4,13,24 |
| 586:13,15 587:18 | 586:19 588:9 | 688:2,24 689:10 | 667:25 673:9,18 |
| 597:19 605:22 | 589:20 591:18 | 689:21 690:6,17 | 674:5,25 675:19 |
| 608:17 609:3 | 592:1 593:9,15 | 691:18,21 692:11 | 676:3 677:11 |
| 622:10 624:15 | 594:3,12,20 | 692:24 694:19 | 681:1 688:2,24 |
| 630:11 636:20 | 595:11 596:12,18 | 695:6 696:24 | 689:11 690:6 |
| 637:21 639:22 | 598:5,9 599:13 | 699:11,19 700:7 | 692:11 694:19 |
| 642:6 645:13 | 600:5,22 601:15 | 700:24 701:19 | 695:6 696:25 |
| 646:10 649:23 | 606:2 607:8 608:1 | 702:14 703:17 | 699:12 700:7,24 |
| 651:14 653:5 | 611:21 612:5,15 | 704:3,20 705:7,21 | 702:15 703:18 |
| 654:7,10 658:3 | 613:6,19 614:3,9 | 706:8 708:18 | 704:3,20 705:7 |
| 660:7 663:7 | 614:22 616:23 | 709:1,18 710:1,11 | 706:9 708:18 |

HIGHLY CONFIDENTIAL

[scope - short]

| | | | |
|---|--|--|---|
| 709:18 710:1,12 711:4 712:25 715:21 716:7 717:17 718:2 score 548:6 scored 652:6 screen 594:16 scroll 558:14 scrolling 600:5 sean 563:25 search 589:12 604:19 605:17 693:19 709:12 searched 589:10 seattle 498:12 second 514:24 534:15,15 541:10 545:9 546:2 573:11 579:16 580:5 585:7 609:3 626:11 627:16 628:21 629:24 631:2,8 632:22 640:10 649:8,22 649:23 650:17,18 663:13,14 668:11 672:15 676:6 685:1 690:25 691:5 708:8 712:20 secure 607:2,24 608:7,12 see 523:8 533:14 539:6 541:14 542:2,10,12 543:23,24 545:12 550:19,21 551:9 551:11,15 552:13 552:14 554:3,4 556:21 557:18 558:8 560:23,25 | 561:2,4,7,11,12,17 561:19,20 562:9 564:1,2 565:22 566:8,13,16,19,20 568:10,12 569:3 570:4,6 571:12,14 571:15 573:5 576:16 581:15,21 587:6,16,18 589:1 593:18 600:13,19 600:20 602:15,23 602:24 604:8,9,10 609:6 611:11 616:20 619:3,4 620:18,19 621:1,2 623:2 627:12 628:3,7,8,12,14,14 628:24,25 634:17 637:17 639:24,25 643:17,18,23,24 643:25 645:6,7,12 646:12,13 647:25 648:14 649:7,9,11 649:23 651:16,19 654:8,9,12 655:15 655:17 660:5,6,11 660:13 661:8 663:5,6,11,12 676:13,24,25 677:1,4 678:6 679:5,6 684:10,17 685:15,16 687:3,4 687:6,7,9,10,12,13 687:15,16 688:13 688:14,16,17,19 688:20 692:4,5,7,8 695:24 696:2,3,5,7 696:8,10,11,13,16 696:17 699:17 700:20,21 707:14 707:15,17,18,24 | 707:25 708:14 709:14,16,20 711:25 712:18,21 seeing 538:19 539:10 708:9 seen 507:11 523:3 524:17 568:7 640:20 655:1 669:16 segment 561:17 segments 566:17 send 599:17 663:8 sending 582:5 sense 587:12 588:13 607:22 715:2 sensitive 573:10 573:15 574:16 575:7,19,23 576:19,21 577:15 577:23 578:3,13 578:19,21,22,25 579:3,4,7,9,10 611:13,19 612:1 612:14 613:5,9,11 613:14,18 sent 508:18 514:14 541:23 582:7 636:8 637:23 666:18 sentence 594:16 595:9 596:5,10 separate 551:19 551:20,21 separately 526:3 series 511:23 531:22 532:11 561:5 662:16 703:7 709:10 serious 663:14 | seriously 578:5 service 625:3 663:23 673:5 712:23 services 588:18 673:6 692:15 693:4 session 672:5 714:22 set 529:12 544:3 544:10 545:4 550:17 551:2 552:1,3,24 554:19 556:13,24 562:18 563:3,5 570:9,22 571:10 572:5 573:1 575:25 577:19 580:9,12 585:16 610:25 624:11 625:15 638:17 668:12 681:14,19 721:6 setting 570:25 settled 535:11 settlement 712:17 share 524:15 530:3 542:3 594:16 622:3 shared 591:11 709:24 711:12 sharing 509:20,21 528:24,24 534:3 553:1 593:2,22 600:2 713:8 shed 682:14 694:22 shipping 621:7 shirley 634:18 635:10,11 short 548:3,11 598:21 604:7 |
|---|--|--|---|

HIGHLY CONFIDENTIAL

[shorthand - specific]

| | | | |
|--|--|--|--|
| shorthand 497:20 721:2,10 show 595:23 616:16 703:4 showing 660:1 706:20 shown 572:16 shows 548:14 shut 569:21 si 722:2 side 645:8 sides 531:5 sign 609:25 645:22 722:16 723:5 signature 721:24 722:21,23,23 723:9 signed 669:14 signify 676:22 simon 496:13 497:15 503:3 506:8 508:1 557:19 720:1,11 722:1,5 724:2 simple 703:2 717:10 simplification 544:2 simply 598:7 683:23 708:3 single 540:2 706:14 sir 634:8 713:14 situation 639:19 six 628:5 685:12 686:1,9,12,15,17 687:23 688:1,22 689:20,25 690:5 690:16 sizing 649:2 651:13 | skeletal 548:23 skeleton 556:15 558:17 566:2 572:12 skipping 548:1 slide 543:3,20 545:7,9,10,16 546:13 548:14,17 548:23 550:18,19 551:1 553:17,19 553:21 555:20 556:3 557:17,18 557:22 558:9,21 562:3,6 566:1,3,14 568:11,12,17,20 569:3,7 570:2,4,6 570:17 571:11,12 572:8,11,12,20 573:6,7 576:6 577:3 580:8 616:18 619:2,8,11 620:15 622:21 623:2,5,8 624:14 627:8,12,17 628:14 630:12,14 630:21,21 631:1,4 634:20 636:19 637:7,7,7,11,13 639:21 642:3,4,5 642:14,18 643:14 644:8 645:1,3,16 646:7,8,9 647:2,3 647:3,3,5,7,7,8,9 647:25 648:3,15 648:19,20 649:3,7 649:9,11,19,22 650:2,20 651:16 651:19 653:14 655:24 658:4 slides 653:1 | slowly 592:15 small 563:6 708:20 smaller 631:18 smith 501:6,12 506:22 snippeted 596:14 snippets 594:22 social 550:25 553:6 652:1,3 673:5 699:8 701:12,14,21 708:9 solemnly 507:19 solutions 722:7 somebody 539:16 605:2 619:11 665:10 698:15 718:10 somebody's 615:21 somewhat 575:23 578:21 soon 514:14 sooner 514:18 sorry 510:20 515:23 517:18 521:7 523:14 529:23 531:14,16 533:14 539:7,18 539:19 541:18 546:9 552:17 554:14 560:25,25 569:25 582:7 585:6 586:25 587:22,23 592:22 593:16 594:20 609:1 614:3 628:13 629:21,21 630:2 633:2 634:24 639:11 | 641:10,13 644:7 645:2 648:22 658:10 664:15 672:3 675:17 682:22 683:7 684:21 686:3 692:18 697:11 698:5 700:8 701:25 705:13,16 706:2 709:17,18 711:21,22 713:20 sort 678:2 sought 549:4 sound 516:2 soundcloud 518:20 sounds 584:25 680:1,3 source 606:9 609:23 625:2,23 682:6,7,12 speak 510:6,13 541:2 641:21 682:2 speaking 562:12 584:4 620:1 623:10 special 502:6 507:3,6,7 533:19 533:23 534:4,14 535:9,10,24,25 595:11,18,25 596:3,12,16,20 597:1,4,9,15,17 598:3,10 599:1,3 719:9,18 speciality 712:8 specialized 694:7 specific 512:21 527:5,23 528:8 531:15 532:22 |
|--|--|--|--|

HIGHLY CONFIDENTIAL

[specific - suggests]

| | | | |
|---|--|---|---|
| 567:8 578:8 579:22 580:1 599:23 618:3 628:1 653:15 668:15 671:6 679:21 681:15,15 681:19,20,22,23 683:18 701:16 708:5 711:10 specifically 511:12 529:22 576:8,9 599:24 604:5 605:16 606:8 622:23 632:3 633:21 641:3 655:1 666:13 668:5 681:14 697:2 699:21 711:8 specifics 532:9 659:11 681:24 speculate 608:13 615:13 627:23 698:25 speculating 528:1 605:19 608:4 609:22 619:18,24 629:10 631:24 647:18 654:5 659:13 speculation 608:1 612:6 613:7,20 614:9 629:5 630:17 631:23 632:8 647:10 648:23 649:16 653:11 657:16 665:8 682:9 spell 698:1 spend 530:7 668:16 | spending 530:12 spoke 541:3,3,4 690:8,9 spoken 540:23 607:14 646:22 654:21 655:24 718:11 spotify 518:17 708:12 stand 652:21 standard 519:13 519:19 553:24 606:13 632:13,19 656:6 705:10,23 standards 639:4 standpoint 601:11 stands 614:17,19 652:19 653:3 start 641:17 644:19 676:13 703:12 started 508:9 597:24 starting 573:14 644:21,22 686:22 starts 671:1 state 507:20 535:3 535:5 594:20 629:25 661:12 676:6 722:9,12 statement 529:10 592:12,14 593:14 596:13,23,24 597:7,7,12,13,14 597:18,20 598:1,8 598:14 599:20 600:4,13,19,20,21 601:13 670:7,9,11 statements 614:15 states 496:1 497:1 611:12 616:18 | 622:11 643:19 645:20 678:13 687:22 691:5 stay 597:25 stenographic 672:22 684:23 stenographically 496:20 step 642:6,15 steps 620:21 steven 509:14 510:13 511:5,13 668:22 stipulation 722:20 stood 571:5 stop 582:24 618:22 624:13 714:24 715:4 stopping 714:20 storage 680:3 stored 681:5 698:11 stories 523:2,8,10 524:17 528:25 530:2 story 604:22 622:5 strategic 515:3,10 515:15,18,20 516:1,16,23,24 517:1,5,6,14 518:6 518:10,22 519:7 519:10,14,15,20 519:23 520:2,5,14 520:18,22 521:1,4 521:11 546:1 547:3,6 558:22 559:13,13 560:11 560:13,16 569:1,8 572:9,22 575:18 584:21 585:23 586:1,13,15 587:6 | 587:16,19 588:4 588:23 628:21 631:9,11,14,17 632:6,14,20 655:16,18 656:3 657:5 705:5,11,12 705:15,19,24,24 706:2,2,3 stream 513:2 602:3 streaming 590:16 streams 590:9 streams.key 542:18 street 499:11 500:9 501:8 502:7 strike 673:25 structure 649:15 structured 552:23 stuff 586:25 587:10 675:8 subject 503:12,21 504:5,15 541:12 581:17 601:7 602:19 634:19 660:11 662:14 subjective 575:23 577:15 578:21 580:21 613:9,11 613:15 subscribed 721:21 subset 550:5 554:23 631:11 632:5 661:22 suggest 538:19 550:5 suggested 663:4 suggesting 580:12 suggests 556:23 571:6 644:8 |
|---|--|---|---|

HIGHLY CONFIDENTIAL

[suite - template]

| | | | |
|--|--|--|---|
| suite 498:11 499:12 500:10,19 501:9 552:24 summarize 642:16 642:22 645:5 650:14 summarizing 604:2 summary 503:22 581:17 sun 634:18 635:10 635:11 636:12 super 606:20 718:5 supplied 616:14 supply 617:10 support 558:6 607:2,24 608:7,12 supported 609:10 supposed 534:1 702:9 supposedly 703:4 sure 511:22 512:22,24 520:16 520:17 525:1,2,14 528:20 532:1,2,10 534:12 537:4 540:3 543:17 546:4,6,10,16 556:12 562:8 567:18 568:16 572:24 573:25 580:4 588:11,18 589:21 592:24 593:16 604:15 605:15 608:11 609:2 615:11 617:14,24 618:12 618:20 621:21 626:11 627:5,25 630:5 631:3,13,15 | 633:13 634:6 635:7,11,14 638:14 639:16 640:22 643:3,11 644:9 649:18 650:13 653:13 656:15 657:24 658:11,12 661:18 662:7 663:3 664:4 664:13,21 672:9 673:10,13 677:24 678:2 683:2 684:20 686:4 688:6 689:13,15 689:22 691:24 692:12 693:15 694:11,22 695:8 697:23 699:13 701:3,25 702:5 709:3 710:6 711:6 712:19 surface 555:23 560:9 575:15 577:11 618:8 surprised 597:6 survey 548:7 swears 506:13 syncing 673:6 system 580:17,25 581:2,5 679:18 682:17 683:23 684:4 698:6 systems 582:9 671:13,19 682:13 t t 500:7 503:8 504:1 505:1 724:3 724:3 tab 541:21 602:11 table 678:15 697:3 698:9,22 | tables 697:25,25 698:3,8,12,14,16 698:17,24 taggable 513:1 699:9 take 517:19 529:12 553:2 560:23 563:9 569:14 593:21 594:4 615:14 618:17,19 631:1 636:4,24 654:14 655:9 660:20 661:19 662:1,19 662:23 669:10 672:9,11,12 686:21,25 687:18 taken 497:15 526:7 536:20 540:16 569:18 608:17 609:3 634:10 658:25 672:19 718:23 721:5 takes 578:4 talk 511:9 521:17 532:22 547:14 555:13 596:18 638:16 679:13 talked 511:23 580:8 591:9 618:6 703:15 705:9 708:1 talking 511:16 512:21 528:9,11 529:19 532:24 571:25 575:24 577:4 632:17 714:4 tasked 544:16,20 | taxonomy 562:1 team 509:3 515:3 515:5,6,7,11,14,15 515:16,22 516:16 516:17,18 517:3,9 518:19 519:22 521:22 525:11,22 527:15,24 531:8 540:20,21 543:1 543:11,14,16 544:12,15,21,24 550:6 558:4,7 559:20,21 562:24 563:8 564:15,21 565:8,13,14,15,17 567:11,12 588:2,2 588:3,4,6 613:17 632:11 660:4,7,8 660:10,16 666:18 682:3 team's 510:7,11 teams 588:7 613:13 638:10 651:7 tech 707:21 710:9 technical 542:8 590:1 602:7 619:23 technology 601:10 tell 516:10 531:18 587:8 592:13 594:16 632:5 637:3,4 653:24 659:3 666:4 677:8 702:8 709:23 telling 665:13 template 645:16 646:9,11,14 647:2 647:4,7,8,15,17,20 648:9,14 650:2,6,8 650:15,21 651:11 |
|--|--|--|---|

HIGHLY CONFIDENTIAL

[template - thought]

| | | | |
|---|---|--|--|
| 654:1 655:16 656:9,19 657:10 658:14,17 ten 543:18 569:15 tense 641:12 term 520:22 521:4 528:23 548:3,3,11 590:6 613:15 619:20,22,23 664:22 666:23 671:9 675:24 683:21 693:1,21 694:1,10,12 termed 674:14 terminated 676:23 terminology 516:20 531:20 665:19 667:16 674:19 terms 521:2 524:5 530:2 531:17 538:18 559:18 590:11 605:23 606:21 618:2 626:3 653:21 654:18 664:7 674:6 test 693:24 709:12 testified 508:3 512:15 521:5 648:8 682:17 703:8 testify 537:21 539:1 615:3,15 672:10 testifying 601:2 721:8 testimony 507:20 508:21,25 511:11 512:4 514:8 516:21 522:4 | 567:18 599:7 615:3 616:13 618:7 636:6 656:13 659:3 661:15 669:2 682:25,25 692:24 719:3,5,6,16 720:4 721:12 texas 500:20 text 590:19,25 thank 508:7 514:6 515:1 535:8,24 536:1,18 542:9 569:25 599:14 602:9 603:12,16 603:17,20 618:24 618:25 627:10 628:2 630:1 633:25 635:2 637:10 660:22 669:25 670:16 676:7 691:21,23 700:12 719:17 thanks 705:17 theme 604:22 thing 524:4 584:19 615:16 620:15 652:17 669:6 672:8 things 505:6 507:14,15 518:20 522:12 526:16 537:5,10,16,25 538:2,10,14 551:2 551:20 552:6,15 552:21 553:7,14 553:17,22 554:1,8 554:10,22,24 555:2,7,21 574:4 576:2,5 578:5 584:7,17,20 | 585:14,15,15 586:21 589:11 603:10,23 610:8 610:25 644:8 648:1,2 649:5 651:3 666:24 673:11 694:14 695:1 702:19 707:12 708:4 710:5 think 509:11 510:1,16 511:6 513:1 515:6,19 516:25 518:8 519:8,10,18 520:1 520:21 522:20 525:22 529:9 539:24,25 540:20 545:1,2 546:9,11 546:11 547:10,15 547:23 548:21,24 549:1,8,8,12 550:2 550:8,13,16 551:3 551:18 556:17,22 556:24 557:1,3,22 558:16 560:3,10 562:14,17 563:13 564:5 565:13 567:6 568:16,19 568:24 571:7,23 572:4 575:22 576:4 577:1,13,25 578:2,4,14,16,20 578:24 579:2,9 580:4,7,11,13,19 581:25 582:7 583:19,21 584:2,3 584:9 586:4 590:13 591:8,19 591:21 592:6 594:6 595:7 598:6 | 598:11 599:11,24 601:1,5,25 608:14 612:23 613:8,10 613:12 615:20 616:15,24 619:19 619:22 623:8 624:7 626:10,11 627:22 628:13 632:13,14 633:3 633:16,19 637:11 640:18 644:7 647:19 650:14 652:13,23,25 654:3,19 655:6,8 655:14 656:1,6 661:25 665:3 667:14 672:1,8 673:20 674:6,7,20 675:3 677:14,16 682:14,24 683:3 686:19,19 693:10 697:12 702:16 705:13 710:4 714:21,23 715:1 715:14 719:13 thinking 604:2 thinks 578:18 599:25 612:19 third 498:10 531:2 546:17 591:12 609:8 628:23 638:8 649:10 670:6 671:10 682:18 684:12,15 691:6,8 693:5 695:17,20 700:1,4 700:13,16 thought 539:18 559:5,20,20 585:13 |
|---|---|--|--|

HIGHLY CONFIDENTIAL

[thoughts - types]

| | | | |
|---------------------------|---------------------------|---------------------------|---------------------------|
| thoughts 580:6 | timeline 524:19 | top 582:25 646:10 | true 686:19 |
| thread 582:1 | 530:6 611:10 | 687:2 691:3 | 715:19 720:5 |
| 585:25 591:21 | 686:10 | 695:25 | 721:12 |
| three 512:24 628:5 | timelines 512:11 | topic 594:9 | trust 663:17,22 |
| 629:2 649:5,12 | times 561:25 | topics 508:11,12 | 666:4,17,21 667:3 |
| 715:6 | 567:13 661:9 | 508:14 509:23,25 | 667:11 |
| tile 515:21 | 673:13 674:12 | 534:2,7 592:2 | trusted 583:4 |
| time 506:6 510:9 | 675:10 681:20,23 | 600:10 607:9 | truth 507:22,22,23 |
| 510:22 515:7 | 708:12 712:6 | 612:3 624:22 | 606:10 609:23 |
| 516:11,19,22 | tinder 583:10 | 640:16 664:16 | 625:2,23 682:6,8 |
| 517:4 527:23 | 584:18 | totality 704:7 | 682:12 |
| 530:7,12 531:4 | title 515:25 516:7 | track 510:8 | truthful 586:18 |
| 532:23 543:13 | 516:11 543:21 | 581:10 681:13 | try 567:15 575:2 |
| 544:10,20 545:18 | 545:10 548:14 | 682:17 697:15 | 600:3 618:21 |
| 547:12 548:7,12 | 550:19 556:4 | tracked 652:11 | 627:23 636:17 |
| 548:20 551:6,16 | 557:18 568:21 | 681:9,9 | 644:15 703:1 |
| 553:18,20 554:23 | 570:4,6 616:18 | tracking 580:23 | trying 527:3 |
| 555:6 558:20,25 | 622:21 628:20,21 | tracks 697:19 | 530:25 537:21 |
| 559:17 569:11,12 | titled 627:11 | transcribed | 544:12,22 551:7 |
| 572:3 574:14 | 707:12 | 721:11 | 551:23 554:14 |
| 579:22 581:1 | titles 516:13 | transcript 720:3 | 555:24 558:4 |
| 583:15 584:5,25 | 628:19 | 721:12,14,16 | 573:20 576:13 |
| 585:3,12 586:7,10 | today 508:21,25 | 722:6,8,10,13,13 | 577:16 579:1 |
| 587:14 594:13 | 513:9,24 514:2,8 | 722:21 723:2,2 | 597:22 599:8 |
| 598:13 603:22 | 514:11,20 534:10 | transition 531:13 | 601:10 615:5 |
| 610:15 618:18 | 571:24 572:1 | 532:6 533:2 | 620:2,2 644:22 |
| 621:13 624:5 | 580:22 581:2 | 534:13 536:5,9,10 | 654:5,5 686:10 |
| 627:21 629:10 | 604:23 615:3 | 549:5,16,19,21,23 | 702:18 703:5 |
| 632:2,18 635:5 | 616:13,17 636:6 | 550:4,12,25 | turn 507:9,10,13 |
| 662:1,19,23 664:8 | 641:14 659:3 | 579:19,23 580:2 | 535:11 |
| 668:16 671:11 | 661:15,22 665:23 | 581:1 691:11 | two 509:25 555:1 |
| 676:17 678:20 | 679:15 690:19 | 695:22 700:18 | 587:3,5 597:23 |
| 679:12,14 680:19 | 707:20 715:11 | 709:8 | 631:2 633:22 |
| 680:21,24 681:6 | 719:6 | transitioned 555:4 | 703:25 708:4 |
| 681:15 684:12,14 | token 602:6 | transitioning | 710:5 715:5 |
| 685:7 702:1 714:1 | told 585:21 | 582:18 | type 563:1 617:19 |
| 714:3,5,10,21,21 | tomatoes 604:20 | transitions 550:17 | 631:8 698:9 |
| 716:1 719:23 | tool 581:8 697:5,8 | treated 719:3 | types 522:18 |
| 721:6 722:10,18 | 697:14,19,22,23 | treatment 719:8 | 526:17 538:12 |
| 722:24 723:7 | tools 554:9 | tried 690:18 | 574:15 575:6 |
| | | | 627:13 673:7,24 |

HIGHLY CONFIDENTIAL

[types - users]

| | | | |
|---|---|--|---|
| 674:1,22 692:2 695:16 708:16,25 709:2,7,14 typically 519:2 520:8,25 521:22 522:6,25 523:6 524:13 526:13 530:10 531:3 606:14 651:3 660:16 | 690:3 691:16 699:21 703:6 714:2,3 719:14 understanding 509:22 514:1 516:20 517:9,25 519:6,9 521:3,6,10 525:17,24 528:22 532:2 537:23 540:22 544:10 545:21 546:13,21 546:22 547:11 551:5 553:20 554:16,22 555:6 555:20 558:24 568:5 586:2,5,6,7 586:10,21 587:13 589:8,16,25 590:15 592:25 595:5,9 601:5,19 601:23 605:3,11 606:12,16,16,17 607:13 610:13 611:4 612:14 613:4 614:13,18 619:25 620:1,5 621:11 622:6,19 623:17 625:24 627:2 633:12,19 633:22 637:20 638:2,16 639:18 640:6 642:10 643:9 651:25 654:22 656:3,23 679:15,19 680:12 680:20,23 681:11 682:20 683:13,20 684:3 690:19 695:3 697:18,24 698:10 701:8 702:3 703:19 | 707:9 713:2 714:7 714:15 716:9,18 717:3,18 718:9 understands 537:22 understood 550:6 655:11 658:11 undertake 639:9 underway 582:20 unidentified 594:23 united 496:1 497:1 universal 656:2 universe 608:19 unlimited 531:7 unmute 507:10 unreasonable 647:13 upcoming 584:23 updated 697:8 updates 510:10 usable 511:7 usage 510:8 605:6 625:17,18 626:1,5 use 516:19 520:22 527:18 546:1 547:3,6 554:6 555:9 558:22 559:13 560:11,14 569:1 572:9,22 575:18 584:21 585:23 586:1,11 586:12,13,15 592:19 593:6 595:16 599:16,21 600:12,16 601:1 626:6 647:14 663:23 692:14 693:9,11,13,19,24 694:7,14 705:5,12 705:19,24 706:3 | 713:16,23 714:12 716:11,15 useful 529:11 603:11 623:7 user 496:4 497:4 506:10 514:4,4 522:8 524:6,9,10 530:10,16 538:11 546:7 552:25,25 579:2,4,5 602:8 617:10,11 626:17 626:19 666:4 670:6 685:5 698:22 699:9 712:22 713:5,5 716:4,18,21 717:6 717:8,13 718:16 722:4 724:1 user's 545:22 602:6 691:11 698:20,21 700:6 700:18 714:18 717:10,14,20 718:15 users 520:12 521:24 522:3,13 522:15,16,20,23 524:15 526:1 528:24 529:16,20 530:3,7,11,25 536:12 537:12 546:4,19 547:18 547:24 553:3 559:2 591:10 617:16,16,23 618:9 626:4 649:6 651:22 665:13 666:4 671:23 678:19 683:16,17 684:6,6 692:15 695:22 714:6,12 |
| u | | | |
| ultimate 554:19 ultimately 544:4 551:4 556:18 557:4 562:1 563:4 566:3 580:10 644:10 646:4 unaware 591:11 uncertain 620:24 unclear 626:17 understand 508:16 510:5 513:14 514:22 532:1,8 533:22 534:19 535:2,3,6 544:13,22 548:8 551:7 553:16 559:8,9 567:15 593:12,14,22 596:4 597:13,22 599:1 600:1 601:10 614:5 620:3 621:13 630:20 631:3 633:2 636:10 637:12 638:25 641:19 643:4 651:21 652:4,16 655:25 656:15 679:11 683:14 685:22 686:10 | | | |

HIGHLY CONFIDENTIAL

[uses - ways]

| | | | |
|---|---|---|--|
| uses 569:8 578:23 579:11 607:19 626:7 674:13 ussd 673:6 | 522:7,10,15,18,21 523:5,11,24,25 524:11,24 525:3,9 525:20 526:1 530:11,13,14,25 531:1,11 532:4,18 533:4,9 536:3,12 536:13,25 537:12 537:18,22,24 538:12,12,15 546:18 587:6,16 587:19 588:5 623:13 625:7,16 625:18 626:1,3,4 639:23 640:4,11 640:14 641:1,8 643:7 644:3 645:17 646:17 650:3,9,21 655:16 655:19 656:3,11 656:21 657:5 | 686:1 695:23 versus 640:4 vf 602:21 vf.pdf 602:22 video 496:14 497:19 507:9,10 videoconference 496:14 497:19 498:2 499:2 500:2 501:2 502:2 videographer 502:18 506:5,11 526:5,8 536:18,21 569:16,19 634:9 634:11 672:17,20 718:21,24 719:21 view 612:20 violate 712:17 violation 663:22 visitation 523:10 volume 496:17 503:3 506:9 643:21 722:5 724:2 volumes 643:15 681:16 | 558:10,10,12 567:18 568:23 569:11 573:25 574:11 592:24 593:16 594:4,8 595:12 597:12,18 599:4,6 606:19 609:2 617:24 618:12 631:3,7 634:4,6 645:15 646:16 650:1,19 652:24 661:18 662:1,7,18 698:25 712:19 714:19 717:2 wanted 535:17 671:20 wants 530:10 702:1 715:5 washington 496:23 498:12 way 509:20 518:14 519:4 520:19 530:12 538:21 544:21 545:2 567:16,17 574:9 576:1 580:14,16 582:6,8 583:3 594:2,7 603:7,15 613:3 615:12 625:13 626:16 652:8 654:25 671:21 674:20 677:15 679:16 707:5 714:16 718:12 ways 519:12 520:14 522:21 537:21 554:7 559:21 591:12 630:23 657:11 |
| v | | | |
| v1 579:23 582:22 685:9,11,20 v2 544:5 574:23 579:23 582:22 691:12 700:19 v2.0 583:5 586:25 587:10 v2.0. 584:13 v4 531:23 vague 522:24 527:1 529:8 530:18 532:20 533:12 537:2 538:17 539:8,23 576:11 581:6 583:18 584:1 585:9 586:19 588:9 589:20 591:18 592:1 612:5 614:4,22 616:23 618:5 623:15 624:1,23 625:20 626:22 629:21 646:1 654:16 655:5 675:1,18 676:2 679:10 680:14 valid 546:1 547:3 547:5 valuable 520:11 522:14 547:17,23 547:24,24 559:2 607:1,7 value 519:16,24 520:6,15 521:17 521:20,24 522:2,3 | varela 541:4 variable 680:22 variety 531:17 554:7 671:19 various 525:12 538:12 553:5 565:9 585:13,15 612:9 673:12 674:12 681:4 vast 670:4 vc 496:4 497:4 verification 668:21 verified 668:22 veritext 506:12 603:13 722:7,9,11 version 531:19,23 532:13 550:25 577:11 579:20,20 585:16,16 685:17 | w w 498:6 502:7 w3.h 635:18 waiting 543:7 waived 722:23,23 waiving 722:20 walk 648:19 wangdra 501:14 506:22 want 507:11 512:22 523:22 530:11 532:9 533:15,17,24 534:8,12 535:16 537:4 554:6 | |

HIGHLY CONFIDENTIAL

[ways - yeah]

| | | | |
|--|--|---|--|
| 681:4 702:23 we've 560:6,16 580:8 591:9 613:10 618:16 663:16 668:23 683:19 703:15 704:18 705:9 708:1 weaver 499:6 507:3,5 web 496:14 497:19 498:2 499:2 500:2 501:2 502:2 website 553:7 websites 708:11 week 588:16 weekly 660:19 weeks 508:9 weigh 535:17 went 511:24 562:3 621:23 651:13 685:24 whereof 721:20 whitelist 540:17 563:2 564:6,10 574:6,9 580:1 581:12 583:9,16 583:20 584:18 585:19 605:8 633:1,5,24 658:8 659:6 whitelisted 563:6 564:20 565:4,12 574:23 577:13 584:7 633:6,11,23 684:13,14 696:1 whitelisting 509:20 510:16,23 562:10,15,18 564:3,13 571:20 571:25 572:5 | 577:5 579:21 580:16,24 634:6 659:20 664:25 whitelists 511:14 545:6 552:3 555:11 570:10,24 571:2,10 573:23 581:9 584:19 585:1,13,14,20,23 586:8 605:6 610:22 633:11 690:11 wide 537:16 538:10 552:20 553:13 576:4 wider 605:18 widespread 626:6 window 680:19 witness 506:13 535:18 569:12 593:18 594:24,24 595:17,19,23 596:1,5 597:6 606:2 627:19 639:16 667:5 719:4 721:20 722:13,16 723:2,5 724:24 wonderful 596:19 wondering 529:20 541:23 word 512:14 515:20 554:7 556:5 665:4 669:19 687:18 703:9 words 567:7 710:14 work 509:17 510:7 510:11 514:16,24 517:10,11 518:2 | 518:22 527:6 531:22 542:17 590:15 651:7 663:16 664:8 698:24 708:3 worked 515:21 517:3,9 518:12,16 518:18 519:22 525:25 527:10 544:15 589:23 593:23 601:20 682:13 714:16 717:4 718:10,12 718:13 working 518:1 519:3 520:9 521:23 522:6 527:12 530:23 531:3 549:17 588:16 675:7 works 600:2 workstream 557:19 558:9,11 558:12,20 559:9 565:22 568:14,18 568:20,24 570:5 570:14,17,20 571:13 572:17,21 580:7 workstreams 550:20,24 556:4,6 556:8,9,14,23 580:9 world 555:25 worth 531:9 558:16 627:4 645:17 646:18 650:3,9,21 worthwhile 524:4 worthy 655:11 | wrap 715:11 wrapped 514:20 wright 498:8 507:2 write 552:23 593:19,25 646:22 652:25 655:24 writes 586:24 588:15 604:1 608:6 620:20 671:8 676:15 707:20 708:2 712:14 715:16 writing 554:17 555:20 654:20 written 545:17 547:9,12,12 548:23 558:8 562:17 563:22 566:2 592:23 593:2 605:2 707:15 710:14 718:5 wrong 531:18 554:6 627:13 wrote 547:5 569:6 ws3.h 635:16,18 ws3.j 504:18 636:20 |
| x | | | |
| x 503:8 504:1 505:1 721:16 723:1 xfn 638:7 | | | |
| y | | | |
| yahoo 708:7 yandex 604:20 yeah 512:8 513:11 514:15,22 520:1 521:10 522:5,25 | | | |

HIGHLY CONFIDENTIAL

[yeah - zoom]

| | |
|---------------------|--------------------------|
| 523:14 525:1 | 573:20 585:18 |
| 527:2,22,25 | 589:6 591:21 |
| 530:20 531:16 | 624:10 |
| 532:11,21 533:13 | yep 587:5 |
| 537:3 538:2 | york 708:12 712:6 |
| 539:10 549:20 | yup 542:15 551:15 |
| 556:6 561:4,8 | 561:12 570:6 |
| 569:12 571:15 | 620:19 628:8 |
| 573:3,7 576:12 | 643:24 645:12 |
| 581:7,21 586:1 | z |
| 592:4 593:19 | zero 631:7 |
| 594:10 595:3,18 | zoom 496:12 |
| 596:20 597:5 | |
| 598:3,20 599:2,3 | |
| 599:17 600:24 | |
| 601:18 602:24 | |
| 603:4 606:7 608:2 | |
| 609:7 610:4 | |
| 611:17 612:7,8,17 | |
| 613:21 614:11,11 | |
| 614:24 616:20,24 | |
| 619:4 621:2 624:2 | |
| 626:13 628:17 | |
| 629:6,17 630:19 | |
| 631:24 633:6 | |
| 636:25,25 639:16 | |
| 642:20 643:18 | |
| 645:6 646:21 | |
| 647:12 649:3 | |
| 657:18 658:2 | |
| 660:13 661:20,23 | |
| 663:1 665:9,18 | |
| 669:9 675:2,17 | |
| 676:1,25 684:18 | |
| 692:5,8 700:12 | |
| 702:16 707:18 | |
| 708:14 710:3 | |
| 718:3 | |
| year 566:5 | |
| years 545:17 | |
| 546:14,23 551:23 | |

Federal Rules of Civil Procedure

Rule 30

(e) Review By the Witness; Changes.

(1) Review; Statement of Changes. On request by the deponent or a party before the deposition is completed, the deponent must be allowed 30 days after being notified by the officer that the transcript or recording is available in which:

(A) to review the transcript or recording; and

(B) if there are changes in form or substance, to sign a statement listing the changes and the reasons for making them.

(2) Changes Indicated in the Officer's Certificate. The officer must note in the certificate prescribed by Rule 30(f)(1) whether a review was requested and, if so, must attach any changes the deponent makes during the 30-day period.

DISCLAIMER: THE FOREGOING FEDERAL PROCEDURE RULES ARE PROVIDED FOR INFORMATIONAL PURPOSES ONLY.

THE ABOVE RULES ARE CURRENT AS OF APRIL 1, 2019. PLEASE REFER TO THE APPLICABLE FEDERAL RULES OF CIVIL PROCEDURE FOR UP-TO-DATE INFORMATION.

VERITEXT LEGAL SOLUTIONS
COMPANY CERTIFICATE AND DISCLOSURE STATEMENT

Veritext Legal Solutions represents that the foregoing transcript is a true, correct and complete transcript of the colloquies, questions and answers as submitted by the court reporter. Veritext Legal Solutions further represents that the attached exhibits, if any, are true, correct and complete documents as submitted by the court reporter and/or attorneys in relation to this deposition and that the documents were processed in accordance with our litigation support and production standards.

Veritext Legal Solutions is committed to maintaining the confidentiality of client and witness information, in accordance with the regulations promulgated under the Health Insurance Portability and Accountability Act (HIPAA), as amended with respect to protected health information and the Gramm-Leach-Bliley Act, as amended, with respect to Personally Identifiable Information (PII). Physical transcripts and exhibits are managed under strict facility and personnel access controls. Electronic files of documents are stored in encrypted form and are transmitted in an encrypted fashion to authenticated parties who are permitted to access the material. Our data is hosted in a Tier 4 SSAE 16 certified facility.

Veritext Legal Solutions complies with all federal and State regulations with respect to the provision of court reporting services, and maintains its neutrality and independence regardless of relationship or the financial outcome of any litigation. Veritext requires adherence to the foregoing professional and ethical standards from all of its subcontractors in their independent contractor agreements.

Inquiries about Veritext Legal Solutions' confidentiality and security policies and practices should be directed to Veritext's Client Services Associates indicated on the cover of this document or at www.veritext.com.

HIGHLY CONFIDENTIAL

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA

IN RE: FACEBOOK, INC., MDL No. 2843
CONSUMER USER PROFILE Case No.
LITIGATION 18-md-02843-VC-JSC

This document relates to:
ALL ACTIONS

HIGHLY CONFIDENTIAL

ZOOM DEPOSITION OF FACEBOOK's 30(b)(6)
CORPORATE REPRESENTATIVE - SIMON CROSS
(Reported Remotely via Video & Web Videoconference)
London, England (Deponent's location)
Monday, June 20, 2022
Volume 4

STENOGRAPHICALLY REPORTED BY:
REBECCA L. ROMANO, RPR, CSR, CCR
California CSR No. 12546
Nevada CCR No. 827
Oregon CSR No. 20-0466
Washington CCR No. 3491
JOB NO. 5281223
PAGES 725 - 985

Page 725

HIGHLY CONFIDENTIAL

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA

IN RE: FACEBOOK, INC., MDL No. 2843
CONSUMER USER PROFILE Case No.
LITIGATION 18-md-02843-VC-JSC

This document relates to:

ALL ACTIONS

CONTINUED VIDEOTAPED DEPOSITION OF SIMON CROSS, taken
on behalf of the Plaintiffs, with the deponent located
in London, England, commencing at
1:35 p.m., Monday, June 20, 2022, remotely reported
via Video & Web videoconference before
REBECCA L. ROMANO, a Certified Shorthand Reporter,
Certified Court Reporter, Registered Professional
Reporter.

HIGHLY CONFIDENTIAL

APPEARANCES OF COUNSEL

(All parties appearing via Web videoconference)

For the Plaintiffs:

KELLER ROHRBACK L.L.P.

BY: DEREK W. LOESER

BY: CARI CAMPEN LAUFENBERG

BY: ADELE A. DANIEL

BY: EMMA WRIGHT

Attorneys at Law

1201 Third Avenue

Suite 3200

Seattle, Washington 98101

(206) 623-1900

dloeser@kellerrohrback.com

claufenberg@kellerrohrback.com

adaniel@kellerrohrback.com

ewright@kellerrohrback.com

/////

HIGHLY CONFIDENTIAL

APPEARANCES OF COUNSEL

(All parties appearing via Web videoconference)

For the Plaintiffs:

BLEICHMAR FONTI & AULD LLP

BY: MATTHEW MELAMED

BY: LESLEY E. WEAVER

Attorneys at Law

555 12th Street

Suite 1600

Oakland, California 94607

(415) 445-4003

mmelamed@bfalaw.com

lweaver@bfalaw.com

/////

HIGHLY CONFIDENTIAL

APPEARANCES OF COUNSEL(cont'd)

(All parties appearing via Web videoconference)

For Facebook, Inc.:

GIBSON, DUNN & CRUTCHER LLP

BY: AUSTIN SCHWING

Attorney at Law

555 Mission Street

Suite 3000

San Francisco, California 94105-0921

(415) 393-8200

aschwing@gibsondunn.com

and

BY: MATT BUONGIORNO

Attorney at Law

2001 Ross Avenue

Suite 2100

Dallas, Texas 75201

(214) 698-3204

mbuongiorno@gibsondunn.com

/////

HIGHLY CONFIDENTIAL

1 APPEARANCES OF COUNSEL(cont'd)
2 (All parties appearing via Web videoconference)

3

4 For Facebook, Inc.:

5 GIBSON, DUNN & CRUTCHER LLP

6 BY: HANNAH REGAN-SMITH

7 Attorneys at Law

8 1801 California Street

9 Suite 4200

10 Denver, Colorado 80202-2642

11 (303) 298-5735

12 hregan-smith@gibsondunn.com

13 and

14 BY: PHUNTSO WANGDRA

15 Attorney at Law

16 1881 Page Mill Road

17 Palo Alto, California 94304-1211

18 (650) 849-5206

19 pwangdra@gibsondunn.com

20

21

22

23

24

25 //

HIGHLY CONFIDENTIAL

1 APPEARANCES OF COUNSEL(cont'd)
2 (All parties appearing via Web videoconference)
3

4 JAMS

5 BY: DANIEL B. GARRIE

6 Special Master

7 555 W. 5th Street

8 32nd Floor

9 Los Angeles, California 90013

10 (213) 253-9706

11 dgarrie@jamsadr.com
12
13
14

15 ALSO PRESENT:

16 Ian Chen, Associate General Counsel,

17 Meta Platforms

18 John Macdonell, Videographer
19
20
21
22
23
24

25 // // // //

Page 731

HIGHLY CONFIDENTIAL

I N D E X

| DEPONENT | EXAMINATION |
|-------------|-------------|
| SIMON CROSS | PAGE |
| VOLUME 4 | |

| | |
|----------------|-----|
| BY MR. MELAMED | 735 |
|----------------|-----|

E X H I B I T S

| NUMBER | | PAGE |
|--------|--|------|
|--------|--|------|

DESCRIPTION

| | | |
|-------------|--|-----|
| Exhibit 425 | Native Excel Spreadsheet, HC_AEO_2022-06016_In re FB-TablesColumn Names; | 867 |
|-------------|--|-----|

| | | |
|-------------|---|-----|
| Exhibit 426 | Native Excel Spreadsheet C2_022-FB-MTHD-00080; | 920 |
|-------------|---|-----|

| | | |
|-------------|---|-----|
| Exhibit 427 | Native Excel Spreadsheet, FB-CA-MDL-029362498; | 945 |
|-------------|---|-----|

| | | |
|-------------|---|-----|
| Exhibit 428 | Native Excel Spreadsheet, C2_018-FB-CA-MDL-02936296. | 964 |
|-------------|---|-----|

/////

Page 732

HIGHLY CONFIDENTIAL

1 London, England; Monday, June 20, 2022 09:04:04

2 1:35 p.m.

3 ---o0o---

4

5 THE VIDEOGRAPHER: We are on the record 01:35:43

6 at 1:35 p.m. on June 20th, 2022.

7 This is the deposition of Simon Cross,

8 Volume 4. We're here in the matter of the In Re:

9 Facebook, Inc. Consumer Privacy User Profile

10 Litigation. 01:35:59

11 I'm John Macdonell, the videographer with

12 Veritext.

13 Before the reporter swears the witness,

14 would counsel please identify themselves, beginning

15 with the noticing party, please. 01:36:09

16 MR. MELAMED: Good morning. My name is

17 Matt Melamed. I'm with the law firm of

18 Bleichmar Fonti & Auld. I represent plaintiffs.

19 With me here presently are Adele Daniel

20 and Emma Wright. They're from Keller Rohrbach, and 01:36:20

21 they also represent plaintiffs.

22 MR. SCHWING: This is Austin Schwing of

23 Gibson Dunn for defendant Meta, and with me are

24 Ian Chen, Hannah Regan-Smith, and Phuntso Wangdra

25 and Matt Buongiorno. 01:36:46

Page 733

HIGHLY CONFIDENTIAL

1 Okay. I think I got everybody. 01:36:47

2 SPECIAL MASTER GARRIE: This is

3 Special Master Garrie on behalf of the courts.

4 Good morning, Counsel Buongiorno. It's

5 been a while. I hope you're healthy. 01:36:57

6 MR. BUONGIORNO: Thank you, Special

7 Master Garrie.

8 THE COURT REPORTER: At this time, I will

9 ask counsel to agree on the record that there is no

10 objection to this deposition officer administering 01:37:05

11 a binding oath to the deponent via remote

12 videoconference, starting with the noticing

13 attorney, please.

14 MR. MELAMED: No objection. Thank you.

15 MR. SCHWING: No objection for the 01:37:27

16 defendant.

17 THE COURT REPORTER: Mr. Cross, could you

18 raise your right hand for me, please.

19 THE DEPONENT: (Complies.)

20 THE COURT REPORTER: You do solemnly 01:37:45

21 state, under penalty of perjury, that the testimony

22 you are about to give in this deposition shall be

23 the truth, the whole truth and nothing but the

24 truth?

25 THE DEPONENT: I do. 01:37:45

Page 734

HIGHLY CONFIDENTIAL

1 SIMON CROSS, 01:37:46

2 having been administered an oath, was examined and
3 testified as follows:

4 EXAMINATION

5 BY MR. MELAMED: 01:37:46

6 Q. Welcome back, Mr. Cross.

7 A. Thank you.

8 Q. So as I mentioned, my name is

9 Matt Melamed from the law firm

10 Bleichmar Fonti & Auld. I'm going to be asking you 01:38:02

11 questions about the 30(b)(6) notice topics 2 and

12 8 today, and then, as I mentioned off the record,

13 Mr. Loeser is going to ask you a few questions

14 about topics 6 and 7.

15 So you understand for these topics, and 01:38:20

16 specifically for topics 2 and 8, you've been

17 designated by Facebook to answer questions on its

18 behalf, correct?

19 A. That's correct.

20 Q. Okay. And you are prepared to do so 01:38:29

21 today, correct?

22 A. I've done my best to prepare, yes.

23 MR. SCHWING: And, Matt, I just want to

24 just state for the record that we have certain

25 aspects of 2 and 8 that have been carved out for 01:38:39

Page 735

HIGHLY CONFIDENTIAL

1 this witness. 01:38:42

2 MR. MELAMED: And to be clear, you're

3 talking about questions related to targeted

4 advertising and data brokers; is that right,

5 Mr. Schwing? 01:38:49

6 MR. SCHWING: That is correct.

7 MR. MELAMED: Okay.

8 Q. (By Mr. Melamed) So, Mr. Cross, just so

9 everybody's clear, you are not prepared to answer

10 questions today related to targeted advertising or 01:38:58

11 data brokers; is that right?

12 A. I have not prepared to answer questions

13 relating to targeted advertising and data brokers.

14 My understanding is that another witness has been

15 designated to -- to cover those types of things. 01:39:12

16 Q. Okay. So for ease of reference

17 throughout this deposition, I will likely ask about

18 third parties generally. And is it okay for you,

19 Mr. Cross and counsel, if when I ask those, you

20 understand that those do not include advertisers, 01:39:32

21 data brokers, and other parties related to targeted

22 advertising?

23 Is that -- Mr. Cross, does that make

24 sense to you? If I say "third parties," you will

25 understand it to not include those entities for 01:39:46

Page 736

HIGHLY CONFIDENTIAL

1 which you are not prepared to testify? 01:39:49

2 A. Yes, I think that makes sense to me.

3 Q. And if you are unclear, please ask. And

4 I'm not -- this isn't to play tricks; it's just so

5 that I don't have to repeat a carve-out in every 01:40:01

6 question or series of questions.

7 Understood?

8 A. I understand, yes.

9 MR. MELAMED: Okay. And, Mr. Schwing,

10 same to you. If ever you believe a question 01:40:11

11 unclear because of that carve-out or you're not

12 sure what I'm getting at, I invite you to ask me to

13 clarify. I just want to make sure that the

14 testimony is -- is clear, but I'd like to avoid

15 having to add pause -- unnecessary pauses to every 01:40:24

16 question.

17 Does that make sense to you?

18 MR. SCHWING: It does. If we have things

19 that need to be clarified along the way, we'll try

20 to work that through. 01:40:37

21 MR. MELAMED: Great. Thank you.

22 Q. (By Mr. Melamed) So as you're aware,

23 Mr. Cross, there's a lot of material from past

24 experience that we are going to cover. I'm going

25 to hope to get through it as efficiently as 01:40:47

Page 737

HIGHLY CONFIDENTIAL

1 possible. I hope you are going to do so as well. 01:40:49

2 Let's start with the description of the
3 topics.

4 So for topic 2, there is a subcategory A.

5 And for that, plaintiffs are focused on the type of 01:41:00
6 data Facebook sold, made accessible to, or made
7 available to third parties.

8 Do you understand that?

9 MR. SCHWING: Matt, I think you -- I
10 think it was unintentional. I think you misspoke 01:41:14
11 and said "sold" instead of "shared."

12 MR. MELAMED: Thank you. Let me repeat
13 that.

14 Q. (By Mr. Melamed) What type of data --
15 make sure I'm reading this correctly. 01:41:25

16 The type of data --

17 MR. MELAMED: Thank you for the
18 correction, Mr. Schwing.

19 Q. (By Mr. Melamed) The type of data
20 Facebook shared, made accessible, or permitted 01:41:36
21 third parties to target. That is the stated topic.

22 Do you understand that?

23 A. I do understand it. I'd love to
24 understand where the boundary comes between making
25 available to target, because that touches on 01:41:51

Page 738

HIGHLY CONFIDENTIAL

1 targeted advertising, and I'd like to understand 01:41:55
2 the -- the boundary there.

3 Q. Okay. So for purposes of questioning
4 today, are you prepared to answer questions on the
5 type of user data or information Facebook shared or 01:42:07
6 made accessible to third parties, with the
7 exception, as we spoke before, of targeted
8 advertising and data brokers?

9 A. I'm prepared to -- to talk about data
10 made available to -- to third parties via the -- 01:42:24
11 the Graph API and the Facebook developer platform
12 in particular.

13 Q. Are there any other ways that Facebook
14 made data available to third parties? And, again,
15 here -- and I'll repeat this a few times until we 01:42:41
16 get in the habit -- this does not include to
17 advertisers or data brokers.

18 A. When you say -- sorry. Again, to be
19 clear, when you say "data" in this context, what
20 kind of data are we -- are we talking about? 01:42:55

21 Q. User data.

22 A. So data on any particular user? "User
23 data" meaning specifically what again? Again, I
24 just want to be super clear.

25 Q. I'm just asking -- and if you're not 01:43:10

Page 739

HIGHLY CONFIDENTIAL

1 clear and if you're unable to answer, tell me. 01:43:12

2 I'll try to do my best to clarify.

3 But the question is: Are you prepared to

4 answer questions about the types of user data for

5 user information that Facebook shared or made 01:43:21

6 accessible to third parties?

7 A. I've done my best to prepare on that --

8 on that topic, yes.

9 Q. And then you are also going to testify

10 about subtopic 2C -- correct? -- which is "the 01:43:40

11 format or formats through which Facebook made user

12 data or information accessible or available to

13 third parties," correct?

14 A. I'm prepared to testify on -- on that,

15 again, with this -- this focus on the Facebook 01:44:00

16 developer platform, which is what I believe is --

17 is pertinent to this case.

18 Q. Are there other ways that Facebook made

19 user data available to third parties, not including

20 targeted advertisers or data brokers? And by 01:44:15

21 "other ways," I'm speaking of other than via the

22 Facebook platform.

23 A. It's possible that like user data was

24 made available to third parties over -- over other

25 means. For example, attachments to emails, 01:44:33

Page 740

HIGHLY CONFIDENTIAL

1 which -- which would -- I'm not able to identify 01:44:35
2 every possible way in which Facebook over the class
3 period has -- has made available information to --
4 to third parties. Like the primary way in which
5 that was done was through the Graph API, and that's 01:44:51
6 where my -- my focus in being able to answer these
7 questions have been put.

8 Q. Okay. Just -- just to be clear, there
9 may be other ways in which Facebook made user data
10 available to third parties other than via platform, 01:45:04
11 and you are not prepared to testify about those
12 other ways today; is that accurate?

13 MR. SCHWING: Misstates his testimony.

14 THE DEPONENT: I can talk at a high level
15 about Facebook generally communicates with -- with 01:45:24
16 third parties using standard -- standard business
17 means and practices. But it would be very hard
18 for -- for me or anyone to answer questions about
19 the totality in which Facebook has ever exchanged
20 information with -- with third parties. 01:45:40

21 Q. (By Mr. Melamed) I'm not -- I'm not
22 asking you to try and capture you. I'm just trying
23 to understand the confines of what you're prepared
24 to testify about today.

25 So are there other ways aside -- you 01:45:58

Page 741

HIGHLY CONFIDENTIAL

1 mentioned Facebook platform as a way that Facebook 01:46:01
2 makes user data available to third parties,
3 correct?

4 A. Correct.

5 Q. You also mentioned a possibility that 01:46:09
6 user attach data could be attached to emails, and
7 you're not prepared to testify about that manner of
8 providing user data to third parties, correct?

9 MR. SCHWING: No. Misstates his
10 testimony. 01:46:18

11 THE DEPONENT: As I said, I could talk at
12 a high level about how Facebook conducts, you know,
13 conversations with -- with third parties at a high
14 level, but it would impossible to -- for me or
15 anyone to -- to know the totality of ways in which 01:46:39
16 Facebook, over a 15-year period, has made -- made
17 data available to -- to third parties.

18 Q. (By Mr. Melamed) Why would that be
19 impossible?

20 A. So in this context, you know, that's -- a 01:46:58
21 broad range in which a way of essentially thousands
22 of people over many years have interacted with --
23 with third parties. I think having a -- a complete
24 understanding of every example would be -- would be
25 hard to come by. 01:47:18

HIGHLY CONFIDENTIAL

1 As I say, the -- the primary way in which 01:47:20
2 Facebook shares data with third parties is via the
3 Facebook developer platform, and I focused my -- my
4 attention there.

5 I can talk at a high level about 01:47:30
6 typically how Facebook conducts business with third
7 parties through with user data may have been
8 exchanged. But, you know, I don't have a record of
9 every email that was sent that may have contained
10 a -- an Excel spreadsheet, for example, containing 01:47:45
11 user information.

12 Q. Are there ways other than via platform or
13 via email that you are aware of that Facebook
14 provided user data to third parties?

15 A. I'm not aware of any other major ways in 01:48:07
16 which Facebook would have shared data with -- with
17 third parties, no.

18 Q. Okay. I just want to be clear. You used
19 the -- the phrase "major ways" in your answer to
20 that question. Are there any other ways other than 01:48:18
21 those that you are aware of?

22 A. Not that I'm -- not that I'm intimately
23 aware of, no.

24 Q. Are there any ways you're aware of in any
25 way? 01:48:33

A. No. Not that I know that Facebook has shared data with third parties from -- from my conversations with -- with people or -- or my own personal experiences.

5 Q. And let's -- let's return to topic 2CU, 01:49:03
6 which concerns the format or formats by which
7 Facebook shared data with third parties -- shared
8 user data with third parties.

9 Do you understand that to be the topic?

| | | |
|----|--|----------|
| 10 | A. Yes, I understand that to be the topic. | 01:49:23 |
|----|--|----------|

11 Q. And you mentioned the Graph API is the
12 primary way that Facebook shares user data with
13 third parties?

| | | |
|----|---|----------|
| 14 | A. The Facebook developer platform of which | |
| 15 | Graph API is a component, yes. | 01:49:36 |

16 Q. Okay. We're going to turn to the
17 Facebook developer platform in a little bit.

18 Counsel has also informed us that you are
19 prepared to testify in a limited way about topic
20 2d, which it concerns how Facebook insured third 01:50:09
21 parties' use of such data or information with
22 limited to the use case; is that correct?

23 A. That's correct. I'm prepared to -- to
24 testify on -- on how platform integrity teams
25 attempted to do that. 01:50:26

HIGHLY CONFIDENTIAL

1 Q. And then you are prepared as well to 01:50:31
2 testify about topic 8, correct?

3 A. Would you just mind reading out just
4 topic 8 for me so I can confirm accurately.

5 Q. No problem. 01:50:43

6 So topic 8 concerns "the methods, tools,
7 technologies, databases, project management tools,
8 task lists, and other internal sources Facebook
9 used to track third parties and data brokers."

10 I understand that you are not prepared to 01:50:57
11 talk about data brokers, but are you prepared to
12 talk about the rest of that topic?

13 A. Again --

14 MR. SCHWING: Just -- sorry. Just
15 quickly. And also advertisers, to the extent 01:51:07
16 that's not encompassed by data brokers as well,
17 Matt, just to have the record clear.

18 Q. (By Mr. Melamed) Are you prepared to
19 talk about topic 8 with the exception of data
20 brokers and advertisers? 01:51:20

21 A. Yes, I have done my best to prepare for
22 topic 8.

23 Q. And that includes the four subsections of
24 topic 8, correct?

25 A. Again, be useful if you'd just read them 01:51:32

HIGHLY CONFIDENTIAL

1 out for -- for extra clarity. 01:51:34

2 Q. Sure.

3 So the first subtopic is "the type and
4 purpose of data and information Facebook received
5 from third parties."

01:51:43

6 And to clarify, that does not include
7 from advertisers or data brokers.

8 Are you prepared to answer that subtopic?

9 A. I've done my best to prepare for
10 subtopic, yes.

01:51:55

11 Q. And topic b, "the type and purpose of
12 data and information Facebook provided to third
13 parties"?

14 A. Yes, I've done my best to prepare for
15 that subtopic too.

01:52:05

16 Q. And "payments consideration, including
17 actual payments and consideration or promised
18 payments and consideration that Facebook provided
19 or received for engaging in exchanges of user data
20 with third parties" -- again, for clarity, not
21 including advertisers and data brokers.

01:52:20

22 Are you prepared to answer on that topic?

23 A. I've done my best to prepare for that
24 topic too -- that subtopic too, yes.

25 Q. And then the final subtopic is "any

01:52:33

Page 746

HIGHLY CONFIDENTIAL

1 evaluation of benefits through Facebook of the 01:52:34
2 information provided or received or engaging in
3 exchanges of user data."

4 Are you prepared to testify about that
5 topic today? 01:52:44

6 A. I have done my best to prepare for that
7 subtopic, too.

8 Q. Do you have any notes to help with your
9 testimony today?

10 A. I prepared a couple of pages of 01:53:00
11 handwritten notes, yes.

12 Q. Okay. And you intend to use those to
13 help you testify?

14 A. Potentially. It depends on the -- on the
15 questions I'm asked to answer. 01:53:07

16 Q. You said you personally prepared those
17 notes?

18 A. That's correct.

19 Q. And how -- how did you go about preparing
20 those notes? 01:53:24

21 A. Those notes are written from my -- my
22 notes from the conversations I've with people to
23 prepare for today and some of documents I've read.

24 Q. Conversations with whom?

25 A. I had a number of conversations with -- 01:53:45

Page 747

HIGHLY CONFIDENTIAL

1 with Facebook employees to prepare for this -- for 01:53:46
2 the deposition today. I can give you their names
3 if -- if required.

4 Q. Would you please give me their names.

5 A. Sure. I spoke to Steven Elia. I spoke 01:53:58
6 to Chad Heaton. I spoke to Tina Cardaci. And I
7 spoke to -- some of these names I forgot now, but
8 I -- I could get for you if needed.

9 Q. What would you do to get their names
10 for -- for us today? 01:54:30

11 A. Look at my calendar. Look at my Outlook
12 calendar.

13 Q. And what did you speak to Mr. Elia about?

14 A. I spoke to Mr. Elia about his experience
15 in managing API whitelisting and the way in which 01:54:46
16 whitelists were tracked over time.

17 Q. Anything else?

18 A. Those are the primary topics we -- I
19 discussed with Steven.

20 Q. You said they're the primary topics. Did 01:55:06
21 you discuss anything else with Mr. Elia?

22 A. I don't recall discussing anything else
23 with Steven beyond the -- the topics I was required
24 to -- to prepare for today.

25 Q. Did your conversation go beyond -- with 01:55:20

HIGHLY CONFIDENTIAL

1 Mr. Elia, did your conversation go beyond 01:55:22

2 discussions of API whitelisting and tracking?

3 A. It would have included identification of

4 how the API or the Facebook APIs behaved as -- as

5 far as discernable at any particular time or at 01:55:39

6 particular times, again, to help me prepare for the

7 topics I've been designated to -- to speak to

8 today.

9 Q. Anything else with Mr. Elia?

10 A. That's about the limit of what I recall 01:55:54

11 discussing with Steven.

12 Q. I just want to note that you -- as you're

13 answering these questions, there are a lot of

14 qualifiers, which is fine, and I'm just asking for

15 clarification when you provide those qualifiers. 01:56:08

16 So you said "it's about the limit" of

17 what you discussed with Steven. Do you recall

18 discussing anything else with Mr. Elia?

19 A. As I sit here today, that's what I recall

20 discussing with Steven. 01:56:22

21 Q. Okay.

22 What did you discuss with Mr. Heaton?

23 A. We discussed a particular document which

24 I believe has been marked for the use of it today.

25 Q. Do you recall which document that was? 01:56:36

Page 749

1 A. I don't recall the Bates number 01:56:43
2 particularly, no. It was a document to do with the
3 platform and interpreting its value to third-party
4 developers.

7 MR. SCHWING: And I would just caution
8 the witness not to reveal any attorney-client
9 privilege information.

12 THE DEPONENT: My understanding is that
13 it was a document marked for -- for exhibition
14 today by -- by the plaintiffs, and I wanted to
15 speak to Mr. Heaton to attempt to understand his 01:57:20
16 understanding of the -- of the document and how it
17 was created.

20 A. I understand Mr. Heaton to have been 01:57:35
21 involved in its creation, but I can't say for
22 certain whether or not he was the creator.

25 A. My understanding is that Mr. Heaton is -- 01:57:49

HIGHLY CONFIDENTIAL

1 is still employed by Facebook. 01:57:52

2 Q. And what is his role at Facebook?

3 A. I'm not certain of what his role is
4 today, I'm afraid.

5 Q. Do you understand what his role was 01:58:02
6 around the time that he was involved in creating
7 the document that he reviewed?

8 A. My understanding is he had some role
9 in -- in finance or business planning, but I
10 wouldn't want to give any more specifics than that. 01:58:16

11 Q. Why wouldn't you want to give me more
12 specifics than that regarding his role?

13 A. That's the understanding I have as I --
14 as I sit here today. I have not reviewed his
15 internal profile or work history, for example. 01:58:41

16 Q. How long did you speak to Mr. Heaton?

17 A. I spoke to Mr. Heaton for about 25
18 minutes.

19 Q. How long did you speak to Mr. Elia?

20 A. I speak to Mr. Elia for around 55 01:58:58
21 minutes.

22 Q. You mentioned you spoke to somebody whose
23 name I don't think I caught, and I don't want to
24 get it wrong, so please correct me. I think it was
25 Ms. Cardaci? 01:59:14

HIGHLY CONFIDENTIAL

1 A. I spoke to Tina -- Tina Cardaci. 01:59:16

2 Q. Can you spell her last name just so we
3 have it clearly for the record, please.

4 A. I'll do my best. I -- I may get it
5 wrong. Cardaci, C-A-R-D-A-C-I, I believe. 01:59:28

6 Q. And what did you speak to Ms. Cardaci
7 about?

8 A. I spoke to Ms. Cardaci about another
9 document which I believe plaintiffs have identified
10 to be exhibited today. 01:59:50

11 Q. And do you recall which document that
12 was?

13 A. Again, I -- I don't know the Bates number
14 or anything like that, but my understanding is it
15 was a document relating to the assessment of the 02:00:02
16 impact of the changes announced in April 2014 upon
17 Facebook's games ecosystem.

18 Q. What kind of impact are you -- do you
19 mean when you say "it was a document concerning the
20 assessment of impact"? 02:00:28

21 A. My recollection is this is a -- a
22 document to do with the potential revenue impact of
23 the changes on the Facebook games ecosystem.

24 Q. And why did you speak to Ms. Cardaci
25 about that document? 02:00:45

Page 752

HIGHLY CONFIDENTIAL

1 A. I believe that helped me understand the 02:02:10
2 document better, yes.

3 Q. And how long did you speak to
4 Ms. Cardaci?

5 A. I think about 25 minutes again. 02:02:19

6 Q. Do you have notes regarding your
7 understanding of either of the two documents we've
8 just discussed? And by "the two documents," I mean
9 the one you spoke about with Mr. Heaton and the one
10 you spoke about with Ms. Cardaci. 02:02:43

11 A. No, I do not have notes relating to my --
12 my conversation with them.

13 Q. Do you have any notes about the documents
14 at all, whether -- whether or not those notes
15 relate to your conversations with them? 02:02:54

16 A. I do not have notes relating to those
17 documents, no.

18 Q. Who else did you talk to in preparation
19 for today's testimony?

20 A. I spoke to Mark Molaro -- I think that's 02:03:10
21 right. Molaro, I think, is probably accurate. I
22 spoke to him too.

23 Q. Why did you speak to Mr. Molaro?

24 A. Mr. Molaro, as I understand it, was
25 involved in the production of documents relating to 02:03:28

Page 754

HIGHLY CONFIDENTIAL

1 the capabilities tool and platform login, which I 02:03:34
2 wanted to make sure I fully understood.

3 Q. Is Mr. Molaro a Facebook employee?

4 A. My understanding is that Mr. Molaro is
5 employed by Facebook. 02:03:50

6 Q. And do you know what Mr. Molaro's role is
7 presently at Facebook?

8 A. My understanding is he's a data science
9 manager.

10 Q. Do you have any understanding whether his 02:04:10
11 role involves anything having to do with the
12 capabilities tool presently at Facebook?

13 A. I'm -- I'm not entirely -- I'm not sure
14 what his role involves at the moment and whether or
15 not he's involved in -- with the capabilities. 02:04:28

16 Q. Do you know if his role at any time
17 during the time he's worked at Facebook included
18 anything having to do with the capabilities tool?

19 A. My understanding is that he -- he has
20 been involved with the capabilities tool in the 02:04:47
21 past, at least.

22 Q. What is your understanding of
23 Mr. Molaro's involvement with the capabilities tool
24 in the past?

25 A. My understanding is that he will have 02:05:00

1 been involved in the -- the information which is 02:05:02
2 stored in the tool and how that information is used
3 internally and the documents that were produced as
4 part of this case.

5 Q. Do you have any understanding of the time 02:05:27
6 period when Mr. Molaro was involved in the
7 capabilities tool at Facebook?

8 A. I don't have that level of detail of
9 understanding. My understanding is he's a -- he's
10 a data scientist on the platform team and so may 02:05:40
11 have been involved from the beginning of his -- his
12 role on that team to today. But I'm not sure of
13 exactly what his -- what time that is.

| | | |
|----|--|----------|
| 14 | Q. Do you know when he started on the data | |
| 15 | science team on platform? | 02:05:54 |

16 A. As I sit here today, I don't have the
17 exact date of -- of his work history, no.

18 Q. Do you have a general understanding of
19 when he started in that role?

20 A. My understanding is he started at least 02:06:08
21 before 2019, but I -- I'm not sure -- again, sure
22 of the exact dates.

23 Q. About how long did you talk to Mr. Molaro
24 for?

25 A. I talked to Molaro, Mr. Molaro, over a 02:06:24

HIGHLY CONFIDENTIAL

1 few sessions. Hard to give an exact amount of 02:06:27
2 time. I'd estimate spending probably 30 to 60
3 minutes with Mark.

4 Q. Do you have any written notes reflecting
5 your conversations with Mr. Molaro? 02:06:50

6 A. I have taken some notes about my
7 conversation with -- my conversations with
8 Mr. Molaro.

9 Q. And those notes pertain to the
10 capabilities tool? 02:07:03

11 A. Those notes pertain to -- to parts of the
12 capabilities tool and other -- other work he was
13 involved in.

14 Q. What else do the notes concern?

15 A. I took some notes regarding some of the 02:07:23
16 more modern logging apparatus that Facebook has
17 today.

18 Q. Is that a singular modern logging
19 apparatus or are there multiple modern logging
20 apparatuses that you're referencing? 02:07:46

21 A. Facebook has many different systems
22 for -- for logging things, and there -- in logging
23 the platform system, there will be multiple --
24 multiple systems involved. We talked through a
25 particular set of data logging structure which was 02:08:08

Page 757

HIGHLY CONFIDENTIAL

1 built more recently. 02:08:14

2 Q. What was that particular set of data
3 logging structure built more recently that you
4 spoke to Mr. Molaro about?

5 A. I spoke to Mr. Molaro about some logging 02:08:28
6 infrastructure that's known as the "Can and Did
7 tables."

8 Q. Is that C-A-N and D-I-D tables?

9 A. That's correct, C-A-N and D-I-D.

10 Q. Do those stand for anything or are they 02:08:44
11 just stand-alone terms?

12 A. My understanding is they're stand-alone
13 terms.

14 Q. Can you describe what the Can table is?

15 A. I'll do my -- my best. My understanding 02:08:57
16 is that the Can table attempts enumerate the
17 information that a Facebook platform application
18 could access or can have access to.

19 Q. Does that include the user -- Facebook
20 user information that a platform application could 02:09:25
21 have access to?

22 A. My understanding is it -- it -- it
23 enumerates the -- the nodes and fields that a
24 Facebook platform application could have access to,
25 some of which may include user information. 02:09:43

Page 758

HIGHLY CONFIDENTIAL

1 Q. Do you know when the Can table was 02:09:51
2 created as a tool to provide such logging?

3 A. My understanding it was built in around
4 2019 and became operational sometime in 2020.

5 Q. Do you know if it contains information 02:10:10
6 dating from before it became operational?

7 A. I do not know if it contains information
8 relating to before it became available.

9 Q. Who would know the answer to that
10 question? 02:10:25

11 A. I would ask Mr. Molaro.

12 Q. Do you know whether the Can table could
13 have technologically been created before 2019 or
14 2020?

15 A. Can you help me understand what you mean 02:10:56
16 by --

17 THE DEPONENT: Sorry, Austin. You were
18 going to say something?

19 MR. SCHWING: Just object to form.

20 Go ahead -- go ahead, Simon, if you 02:11:02
21 wanted to clarify something.

22 THE DEPONENT: Yeah. Can you clarify
23 what you mean by "could technologically have been
24 created"?

25 Q. (By Mr. Melamed) Was the Can table 02:11:12

HIGHLY CONFIDENTIAL

1 created -- let me withdraw that and restate it. 02:11:14

2 Was there new technology that became
3 available that enabled Facebook to create the Can
4 table in or around the time that it became
5 created -- that it was created? 02:11:28

6 MR. SCHWING: Object to form.

7 THE DEPONENT: The development of these
8 logging systems themselves would be -- I would
9 classify as new technology because they involved
10 code being written. 02:11:46

11 Q. (By Mr. Melamed) Was there anything that
12 prevented the code that was written for the Can
13 table from being written at an earlier point in
14 time?

15 MR. SCHWING: Object to form. 02:12:01

16 THE DEPONENT: These -- these tables deal
17 with large amounts of information or potentially
18 deal with large amounts of information, and compute
19 and storage power in the past was -- was less than
20 it is today. And so it's -- it wouldn't have been 02:12:18
21 possible to -- to build these tables in the form
22 they're in today in -- you know, it is in the past.

23 Q. (By Mr. Melamed) When did the computing
24 and storage power become sufficient to support
25 the -- the tables that comprise the Can table? 02:12:46

Page 760

HIGHLY CONFIDENTIAL

1 MR. SCHWING: Object to form. Outside 02:12:54
2 the scope.

3 THE DEPONENT: The -- that's a hard
4 question, I think, for -- for anyone to answer,
5 because the -- the information that's contained in 02:13:04
6 them or -- or the processing required to create
7 them, there's -- there's no like one point in time
8 where they would have suddenly become possible.
9 Data infrastructure and technology has been
10 continually improving over time. 02:13:24

11 Q. (By Mr. Melamed) Would it have been
12 possible to have created the Can tables at any time
13 prior to when they were created, which I believe
14 you said was 2019?

15 MR. SCHWING: Object to form. 02:13:47

16 THE DEPONENT: Again, like -- it's a
17 hard -- hard question to answer. They -- they
18 could have been created in a -- in a different form
19 earlier. Like -- yeah, I'm just not sure I can --
20 I can answer that question in -- in any way. It 02:14:05
21 would be me speculating as to the compute processes
22 required and -- and Facebook's data infrastructure
23 capabilities at -- at the time. That's just --
24 that's a level of detail, I think, is -- is hard
25 for me to answer, I'm afraid. 02:14:20

Page 761

HIGHLY CONFIDENTIAL

1 Q. (By Mr. Melamed) If you wanted to 02:14:22
2 understand better the answers to that question, who
3 would you ask?

4 A. Again, my first point of call would be
5 Mr. Molaro, who seems to be knowledgeable on these 02:14:35
6 matters.

7 Q. Going back to the content of Can table,
8 you mentioned that it's -- it identifies which
9 platform apps can have access to -- to certain
10 types of data; is that correct? 02:14:59

11 A. My understanding is that the -- the Can
12 tables attempt to enumerate the information that a
13 platform app has access to.

14 Q. How does the Can table index the
15 information that a platform app has access to? 02:15:23

16 A. My understanding is that are there is a
17 script that runs every day that enumerates through
18 platform API nodes and methods and attempts to
19 determine whether or not an app would be able to
20 access the information provided by those methods. 02:15:51

21 Q. So would it be possible for somebody at
22 Facebook to look at whether a particular app had
23 access to a particular method at a point in time
24 since the Can table has been implemented?

25 A. My understanding is that's the intent 02:16:17

HIGHLY CONFIDENTIAL

1 of -- of the technology, although there are likely 02:16:19
2 caveats and details as to what's possible that --
3 that I'm -- that I'm not aware of. In -- in
4 preparation for testimony today, I did my best to
5 understand these systems at a high level. So 02:16:34
6 that's a question I -- I don't think I'm able to --
7 to answer for you, I'm afraid.

8 Q. All right. If you wanted to provide a
9 more full answer to that question, would you ask
10 Mr. Molaro? 02:16:51

11 A. Mr. Molaro would be one of the people I
12 would ask to speak to for -- for more specific
13 information.

14 Q. Who else would you ask to speak to for
15 more specific information? 02:17:02

16 A. I would start with Mark.

17 Q. Is there anybody else that -- that you
18 come to mind who you would speak to other than
19 Mr. Molaro?

20 A. At this point, no. I would start with 02:17:18
21 Mr. Molaro and go from there.

22 Q. Do you have any understanding of why the
23 Can table was developed?

24 A. My understanding is that the Can table
25 was developed to -- in response to some obligations 02:17:38

HIGHLY CONFIDENTIAL

1 in -- in regards to the FTC consent decree. 02:17:45

2 Q. Is that the consent decree as modified in
3 2019?

4 A. I'm -- I'm not sure specifically exactly
5 which one it was referring -- was -- was the 02:17:57
6 results of the -- sorry. Let me answer that
7 question.

8 I'm not exactly which version of the FTC
9 consent decree triggered the -- the work to create
10 these tables. 02:18:11

11 Q. Who would you ask to find out which
12 version of the FTC consent decree triggered the
13 creation of the Can and Did tables?

14 A. I would, again, start with Mr. Molaro.

15 Q. What is your understanding of the Did 02:18:35
16 table? What is the function of the Did table?

17 A. My understanding of -- of the Did table
18 or the Did tables is that they attempt to identify
19 the information which a Facebook platform
20 application has accessed. 02:18:57

21 Q. Do you know when the Did tables were
22 created?

23 A. My understanding is they were -- they
24 were built in 2019 and began to come online in --
25 in 2020. 02:19:15

HIGHLY CONFIDENTIAL

1 Q. Were the Can and Did tables created as 02:19:21
2 part of the same -- let me withdraw that.

3 What was impetus for the creation of the
4 Did tables?

5 A. My understanding is -- is similarly that 02:19:40
6 the -- the Did tables were a response to some
7 enhanced logging requirements and were an update to
8 previous platform logging infrastructure.

9 Q. Do you know if the Did tables could have
10 been created before they were created? 02:20:07

11 MR. SCHWING: Object to form.

12 THE DEPONENT: Again, similar to my
13 answer with the -- with the -- with the Can tables,
14 I'm not intimately involved in -- in understanding
15 of their complexity or the resources required to 02:20:28
16 create them, and so I -- I -- I don't feel like
17 that's an answer -- a question I can -- I can
18 answer.

19 Q. (By Mr. Melamed) Who would you ask if
20 you wanted to know the answer to that question? 02:20:40

21 A. Similar to my previous answers, I would
22 start with Mr. Molaro and -- and see if those
23 questions were answerable by him or even answerable
24 at all.

25 Q. Is -- sorry. Let me withdraw that. 02:21:00

HIGHLY CONFIDENTIAL

1 Do you have any understanding of how the 02:21:08
2 Did tables work?
3 A. I have --
4 MR. MELAMED: Let me restate that.
5 That's a terrible question. 02:21:16
6 Q. (By Mr. Melamed) Do you have any
7 understanding of how Facebook users inside at
8 Facebook could -- could use the Did tables to find
9 information?
10 MR. SCHWING: Object to form. 02:21:29
11 THE DEPONENT: I -- I understand that
12 certain Facebook employees would be able to query
13 those tables using internal data querying
14 infrastructure. The way in which they queried
15 those tables would be or could be in numerous ways. 02:21:50
16 Q. (By Mr. Melamed) Do you know whether
17 they could query the Did tables by app to
18 understand all of the user information that an app
19 did access during the period of times -- time for
20 which the table exist? 02:22:11
21 A. I -- I -- my understanding is that these
22 tables do contain an app ID and -- and therefore
23 that's theoretically possible, but I have not
24 queried the table myself, and so I'd be speculating
25 as to exactly what -- what's possible with these 02:22:32

Page 766

HIGHLY CONFIDENTIAL

1 tables. 02:22:34

2 Q. Do you understand whether the Did table
3 could be queried by the type of information
4 accessed so that somebody could determine all of
5 the apps that determined -- that accessed a 02:22:49
6 particular type of information?

7 MR. SCHWING: Object to form.

8 THE DEPONENT: Yeah, I'm -- I'm not
9 familiar with the precise structure of those
10 tables, so I'd be speculating as to -- as to 02:23:02
11 exactly what -- what is possible with them.

12 Q. (By Mr. Melamed) And who would you ask
13 to figure out what was possible in terms of
14 querying the Did table -- tables?

15 THE DEPONENT: Similar. I would start 02:23:19
16 with Mr. Molaro and see where he goes from there.

17 Q. (By Mr. Melamed) Prior to the creation
18 of the Did tables, did Facebook use any method to
19 track the user information that apps did access?

20 MR. SCHWING: Object to form. 02:23:43

21 THE DEPONENT: Facebook has a number of
22 systems for logging API usage, and those logs would
23 identify which API calls an app made and would
24 include the method that was called, and -- and that
25 could in some cases be linked to type of 02:24:15

Page 767

HIGHLY CONFIDENTIAL

1 information. 02:24:19

2 So those -- those form of logging did
3 exist previously.

4 Q. (By Mr. Melamed) So in that answer you
5 talked about API calls and method calls, correct? 02:24:29

6 A. I likely mentioned API calls and methods,
7 yes.

8 Q. Are you aware of any tracking that
9 existed before the Did tables that tracked the
10 information that was returned when an API call was 02:24:52
11 made?

12 A. I'm not aware, as I sit here today, of --
13 of any system which tracked the response -- the
14 detail response to an API request.

15 Q. In preparing for today, did you 02:25:17
16 investigate whether there existed any system that
17 tracked the response to API requests?

18 A. Yes. I spoke to Mr. Molaro and Mr. Elia
19 about whether or not we logged API responses.

20 Q. And the answer was that Facebook did not 02:25:48
21 log API responses?

22 A. My understanding is that there was --
23 there's not -- there's no API -- API responses were
24 not regularly logged as part of the standard
25 platform logging infrastructure. 02:26:04

Page 768

HIGHLY CONFIDENTIAL

1 Q. Were they ever logged as part of the 02:26:12
2 logging infrastructure?

3 A. It's hard -- were they -- were they ever
4 logged over which time period? Like ever?

5 Q. During -- during the time period at issue 02:26:30
6 in this case. And as a general matter going
7 forward for -- for the questions today, if you
8 don't understand, please clarify.

9 A. Sure.

10 Q. But as a general matter, my questions 02:26:38
11 will be from 2007 to present.

12 And so here we're talking about 2007 up
13 until the creation of the Did tables.

14 Were API responses ever logged between
15 2007 and the creation of the Did tables? 02:26:58

16 MR. SCHWING: Object to form.

17 THE DEPONENT: It's -- it's possible that
18 an engineer or data scientist may have implemented
19 logging for a debugging, for example, or -- or --
20 or some other form of investigation. 02:27:18

21 But from talking to the people who -- who
22 know this infrastructure well, API responses were
23 not routinely logged or stored.

24 Q. (By Mr. Melamed) Were API calls
25 routinely logged prior to creation of the Can 02:27:40

HIGHLY CONFIDENTIAL

1 tables? 02:27:44

2 A. The infrastructure to log API calls will
3 have evolved and changed over time, so hard to give
4 a comprehensive answer of all parts of the -- of
5 the time period. But broadly, from my involvement 02:28:02
6 in platform, yes, API calls were -- were logged in
7 in various forms.

8 Q. When did you become -- first -- let me
9 withdraw that.

10 When -- on what date are you first aware 02:28:22
11 that API calls were routinely logged?

12 A. I'm not sure of the precise date as to
13 which Facebook began logging API calls. Again,
14 the -- the information -- the -- the logging
15 infrastructure will have and did change 02:28:46
16 significantly over the kind of 15-year -- year
17 period that you're asking about.

18 Q. Are you aware of how API calls were
19 logged in 2007?

20 A. I'm not aware precisely how API calls 02:29:01
21 were logged in 2007.

22 Q. Were API calls regularly logged in 2007?

23 A. I don't know whether or not API calls
24 were logged routinely in 2007.

25 Q. Who would know that information? 02:29:22

Page 770

A. I'm not sure who would know that information. The -- data infrastructure that Facebook has has changed significantly over time, and many of the people involved in -- in building it back then would no longer be at the company. In fact, I'm not aware of many people who are still at the company from back in that time.

| | |
|---|---|
| 8 | Q. Were API calls regularly logged in 2008? |
|---|---|

9 A. I don't know for certain whether API
10 calls were regularly logged in 2008. 02:29:56

11 Q. Who would know whether API calls were
12 regularly logged in 2008?

13 A. Similar to my previous answer, I'm not
14 sure who would know. I would ask the -- I would
15 start by asking the data science team to see if
16 they knew that or the answer to that question,
17 which is a relatively specific question.

18 Q. Who on the data science team would you
19 ask?

20 A. At this point, I would start with Mark 02:30:28

21 Molaro, similarly, and see if he knew or knew the

22 right person.

| | |
|----|---|
| 23 | Q. Were API calls regularly logged in 2009? |
|----|---|

24 A. Similarly, I'm -- I'm unaware of whether
25 or not API calls were regularly logged in 2009.

HIGHLY CONFIDENTIAL

1 Q. Were API calls regularly logged in 2010? 02:30:55

2 A. I am unaware as -- I'm not -- I'm not
3 fully confident in whether or not API calls were
4 logged in -- in 2010. This is when the beginning
5 of my involvement with platform begins, and I 02:31:15
6 recall -- again, in a personal capacity how I
7 recall like seeing information about API calls
8 being made by apps, but the precise nature of what
9 was logged and -- and when that began is -- is not
10 something I am able to testify about today. 02:31:36

11 Q. What were the tools you recall
12 encountering in 2010 that reflected API calls?

13 A. I recall a tool called Page Stats, but I
14 want to be -- I want to be clear here that this is
15 a long time ago, and it's hard to be -- for me to 02:32:03
16 be confident that I was involved in viewing
17 platform logging in -- in late 2010. I joined the
18 company in September. So I -- I'm not sure I can
19 give a confident answer to that.

20 Q. What kind of information did Page Stats 02:32:27
21 reflect?

22 A. I don't recall exactly what -- what
23 information Page Stats would have -- would have --
24 would have requested -- would have stored.

25 Q. Did Page Stats reflect information on an 02:32:46

HIGHLY CONFIDENTIAL

1 app-by-app basis? 02:32:52

2 A. Again, I -- I'm not entirely confident in
3 how Page Stats worked or the information that was
4 contained in it, and so I'd be speculating, I'm
5 afraid. 02:33:06

6 Q. Does the information that was retained in
7 Page Stats from 2010 -- sorry. Let me withdraw
8 that and restate it.

9 Was the information that was reflected in
10 Page Stats in 2010 retained by Facebook? 02:33:21

11 A. I'm not aware exactly what information
12 from legacy logging systems has been retained and
13 what hasn't. Again, that answer -- I did plenty of
14 work to prepare for today's testimony. That's a --
15 that's a very detailed question that I'm afraid I 02:33:44
16 can't give an accurate answer to today.

17 Q. Were API calls regularly logged in 2011?

18 A. Again, I -- I can't confidently say what
19 was being logged in -- in 2011, but my recollection
20 from the time is that, yes, API calls were being 02:34:07
21 logged in in some way.

22 Q. What is your recollection of the way in
23 which API calls were being logged in 2011?

24 A. My understanding is that API calls were
25 being logged in to a data warehouse, now known as 02:34:30

Page 773

HIGHLY CONFIDENTIAL

1 Hive, and there was another system that came into 02:34:41
2 existence, but I'm unclear exactly when.

3 Q. What is the other system that you're --
4 that you're referring to?

5 A. The other system I recall using to query 02:34:55
6 API calls was -- is a system called Scuba. But
7 exactly when Scuba became -- came online and its
8 relation to these other tools is not something I
9 have a detailed lineage of, I'm afraid.

10 Q. Do you know whether the information 02:35:17
11 reflecting API calls that were recorded in Hive
12 exist for the entirety of the time that that -- let
13 me withdraw that and restate it.

14 Has Facebook retained all the information
15 in Hive regarding API calls? 02:35:40

16 MR. SCHWING: Object to form. Outside
17 the scope.

18 THE DEPONENT: Again, I'm not -- I'm not
19 sure exactly what Facebook has retained from which
20 systems across a 15-year -- across a 15-year time 02:35:55
21 period.

22 This data retention and storage is -- is
23 a very special subject. I prepared to testify at a
24 high level on these -- on these topics, but that
25 level of detail is something I -- I don't have on 02:36:10

Page 774

HIGHLY CONFIDENTIAL

1 hand today, I'm afraid. 02:36:14

2 Q. (By Mr. Melamed) Okay. If you wanted to
3 see the API calls that a particular app made in
4 2011, do you know if you could do that?

5 A. I do not -- I do not know if that could 02:36:23
6 be done.

7 Q. And who would you ask whether that can be
8 done?

9 A. I would -- I would ask Mr. Molaro, again,
10 as to whether or not I was -- that was possible 02:36:35
11 or -- or -- or achievable.

12 Q. And you said you're not sure of -- well,
13 let me -- let me ask this as a question.

14 What was the difference between the API
15 call information that was stored in Hive and the 02:36:51
16 API information that was stored in Scuba?

17 A. There's likely numerous differences which
18 I -- I would not be able to enumerate all of the
19 differences. One common difference is that the
20 information stored in Hive became available several 02:37:08
21 days, one or two, after the actual APIs were being
22 called, whereas Scuba allowed a more real-time view
23 into -- into what apps were doing.

24 Q. Let me return quickly to a question about
25 the Can and Did tables. 02:37:35

HIGHLY CONFIDENTIAL

1 Where in Facebook's data infrastructure 02:37:39
2 are the Can and Did tables stored?
3 A. My understanding is they're stored in
4 Facebook's Hive data warehouse.
5 Q. Do you know if they have a different name 02:38:08
6 within the Hive data warehouse, a particular table
7 name other than the "Can" and "Did"?
8 A. Those -- those tables probably -- the
9 names of those tables will contain other -- other
10 words and terms which I'm not fully familiar with. 02:38:24
11 So, yeah, the names of the tables are likely
12 more -- more descriptive.
13 Q. But you're not aware of them, of what
14 those names are, as you sit here today?
15 A. I don't recall the specific and full 02:38:39
16 names of those tables, no.
17 Q. I think we left off at 2011 where I'd
18 asked whether API calls from a particular year
19 were -- were tracked.
20 Is that -- is that your recollection too? 02:39:08
21 A. My -- my understanding is that in --
22 in -- it's likely that API hits were being tracked
23 in some form in 2011, but in precisely what form,
24 I -- I don't recall, as I might be speculating.
25 Q. Is there a difference between the term 02:39:28

Page 776

HIGHLY CONFIDENTIAL

1 "API hit" on one hand and the term "API call" on 02:39:30
2 another?

3 A. Generally, the term "API hits" and "API
4 calls" are synonymous and would typically be used
5 interchangeably. 02:39:48

6 Q. And what -- what do those terms
7 reference?

8 A. Those terms reference where -- where an
9 application, which could be a first-party or a
10 third-party application, for example, make a 02:40:06
11 request to Facebook's API.

12 Q. Would an application have to receive
13 approval or -- let me withdraw that.

14 Would an application have to receive
15 permission from Facebook before making an API call? 02:40:23

16 A. Not necessarily. The API exists as -- as
17 a server on the Internet, and it's possible to call
18 those APIs without some form of authentication.
19 But the information returned most likely in that
20 circumstance would -- would be an error. It 02:40:56
21 depends on exactly the form of API call that's
22 being made and exactly what -- what information is
23 supplied at request time is a -- a degree of ways
24 that that works.

25 Q. You mentioned that an API that was called 02:41:17

Page 777

HIGHLY CONFIDENTIAL

1 without some form of authentication would likely 02:41:26
2 return an error; is that right?

3 A. Well, the -- there are -- there are many
4 ways -- there's lots of different APIs. I think
5 their exact behavior differs from API to API, and 02:41:42
6 the response provided will differ from API to API,
7 and the information required to be provided by the
8 third-party developer in order to get a successful
9 response will also change from API method to API
10 method. 02:42:06

11 Q. If an error was returned as a result of
12 an API call, what form would that error take? Is
13 there a common form that that error would take?

14 A. There are two common ways in which APIs
15 generally signal error states. The first is an 02:42:30
16 HTTP error code, and the second is returning an
17 error object as part of the API response.

18 Q. Can you be more specific about each of
19 those? Like what the HTTP error code say?

20 A. There's a list of standard HTTP error 02:42:55
21 codes provided by the W3c, and an API provider
22 would generally emit an API code -- sorry -- an
23 HTTP error code that indicates the type of error
24 that the API had encountered.

25 Q. You said a -- an API provider would 02:43:23

HIGHLY CONFIDENTIAL

1 typically use one of these standard HTTP -- HTTP 02:43:31
2 error codes. Did Facebook generally -- I'm sorry.
3 Did Facebook respond with these typical
4 HTTP error codes when a standard error code was --
5 That question got very messed up. Let me 02:43:56
6 restate it.
7 Did HTTP -- did Facebook use the standard
8 HTTP error codes in response to calls that were not
9 permitted?
10 MR. SCHWING: Object to form. 02:44:20
11 THE DEPONENT: Again, the Facebook APIs
12 have -- have changed in -- in form over -- over the
13 time period we're talking about here, and the error
14 returned would differ. The way errors would be
15 expressed would differ depending on the -- the type 02:44:41
16 of API being used or the API being used and -- and
17 the method and how it had been implemented.
18 My recollection is that -- that the --
19 that the Facebook -- that the Facebook APIs over
20 time would have emitted HTTP error codes in some 02:44:56
21 cases as one way of signaling errors.
22 I recognize the answer is -- is -- is
23 heavily -- is a little complex, but the -- the --
24 my understanding is at times HTTP error codes will
25 have been one of the ways in which some Facebook 02:45:23

Page 779

HIGHLY CONFIDENTIAL

1 APIs signaled error states. 02:45:26

2 Q. (By Mr. Melamed) At those times, were
3 the HTTP error codes the typical HTTP error codes?

4 A. Again --

5 MR. SCHWING: I'm sorry. Object -- 02:45:38
6 object to form.

7 Go ahead, Simon.

8 THE DEPONENT: Similarly, it -- it's hard
9 to give a full and complete answer there because of
10 the number of APIs that existed and how they 02:45:50
11 changed over time.

12 It would typically be a good practice for
13 an engineer implementing an API, if they were
14 returning an HTTP error code, to return the one
15 that most closely matched the situation that the 02:46:07
16 API had encountered.

17 Q. (By Mr. Melamed) Did Facebook maintain a
18 list of the error codes it returned from
19 unsuccessful API calls?

20 A. The HTTP error code mechanism, there's 02:46:27
21 only a standard set of HTTP error codes that the
22 W3c did -- like -- codifies, and so that would
23 generally be the list of error codes that an
24 engineer would be able to choose from.

25 Q. You also mentioned error objects that 02:46:48

HIGHLY CONFIDENTIAL

1 could get returned, correct? 02:46:51

2 A. That's correct, yes.

3 Q. Did Facebook maintain a list of the error
4 objects that could be returned?

5 A. Facebook maintained some lists of errors 02:47:07

6 that could be returned, but I'm unclear -- you
7 know, how to say when that list came into existence
8 and whether or not it was possible for an engineer
9 to emit an error that was more custom than one of
10 the predefined ones. 02:47:32

11 Q. Does Facebook presently maintain a list
12 of error objects that can be returned?

13 A. I am unaware of whether or not Facebook
14 maintains a list of API error objects that --
15 that -- that could be returned. 02:47:52

16 Q. Are you aware of whether Facebook ever
17 retained a list of error objects that could be
18 returned?

19 A. I recall in the past a system which was
20 used to enumerate potential error states and 02:48:08
21 control the API response in those circumstances,
22 but I couldn't say when that system started or --
23 or stopped and -- and whether or not it was fully
24 comprehensive of -- of the API responses that could
25 be returned. 02:48:35

Page 781

HIGHLY CONFIDENTIAL

1 Q. What was the name of that system? 02:48:37

2 A. I don't recall the precise name of that
3 system. I'm -- I'm going from memory here on a --
4 on a system that I -- that I recall, but
5 couldn't -- couldn't give a very confident answer 02:48:55
6 as to the name of.

7 Q. Do you have any recollection of what the
8 name could have been or could have included?

9 A. The system I'm referencing here in my
10 head I think may have been called "Coded 02:49:12
11 Exception," but -- but, again, I -- I'm not
12 entirely confident of -- of the precise name of
13 that system.

14 Q. If you wanted to know more about the
15 system, whatever it was named, who would you go to? 02:49:24

16 A. My first act would be to search for the
17 name of that in Facebook's internal tools and
18 systems and then speak to someone on the platform
19 team as to whether or not it was relevant.

20 Again, I want to be clear: I'm trying to 02:49:49
21 give here the best answers I can based on my -- my
22 understanding and my memory. And I'm trying also
23 be clear when I'm doing that from my personal
24 memory and experiences versus a more general
25 answer. 02:50:07

Page 782

HIGHLY CONFIDENTIAL

1 Q. Is there any individual you would ask 02:50:09
2 about this system that was used to reference the
3 error states that could be returned?

4 A. I would -- I would ask Steven Elia and
5 see if he knew or knew who knew. 02:50:28

6 MR. SCHWING: Matt, we've been going for
7 longer than an hour. Would this be a good time for
8 a break?

9 MR. MELAMED: Yeah. Let me just ask a
10 few more questions and then we'll take a break, if 02:50:39
11 that works for you.

12 MR. SCHWING: Okay.

13 Q. (By Mr. Melamed) Is that okay,
14 Mr. Cross?

15 A. Yeah, that's fine. 02:50:47

16 Q. Do you have any recollection about the
17 time period? I know you don't have a specific
18 recollection about this system that was used to
19 track error states, but do you recall any point in
20 time when it was in use? 02:50:57

21 A. I -- I don't want to give an answer
22 that -- that -- that's based on very, very poor
23 memory of this. This is a -- you know, a system
24 that I didn't have deep understanding or
25 integration with from -- from, you know, eight or 02:51:17

HIGHLY CONFIDENTIAL

1 nine years ago. So I -- I'm just not sure I can 02:51:21
2 give an accurate answer as to -- as to when it was
3 sourced or in use.

4 Q. And you said you don't believe that -- am
5 I correct that you do not believe the system is 02:51:38
6 still in use today?

7 A. I do not know whether or not the system
8 is in -- is in use today.

9 Q. But to find that out, you would ask
10 Mr. Elia? 02:51:52

11 A. I would ask Steven, Mr. Elia, if he had
12 an answer to that question of that specificity,
13 yes.

14 Q. All right.

15 MR. MELAMED: Before we go off the 02:52:11
16 record, Mr. Schwing and Mr. Cross, I'd like to ask
17 for the notes that you are -- that you have taken
18 in order to prepare for today. If you can produce
19 those to us, I'd appreciate it, and doing so
20 immediately so that we can review them and use them 02:52:25
21 during today's questioning.

22 Mr. Schwing, if that's okay with you or
23 if that's something you want to discuss off the
24 record?

25 MR. SCHWING: Yeah. Why don't we take a 02:52:38

HIGHLY CONFIDENTIAL

1 look at the notes just to make sure there's nothing 02:52:39
2 that's -- you know, for example, in terms of being
3 privileged. And we can address that further, Matt.
4 I think we can probably work it out.

5 MR. MELAMED: The only note I would make 02:52:52
6 to that point is if there -- if there is something
7 that is attorney-client privileged that Mr. Cross
8 is using to testify from, it's no longer
9 attorney-client privilege, and that will be waived.

10 But happy to deal with that off the 02:53:06
11 record and, of course, take a look at those. But
12 we would just ask that you do so as quickly as
13 possible so we can use them during today's
14 testimony.

15 MR. SCHWING: Yeah, I -- I understand the 02:53:17
16 request. We'll take a look at the notes and we can
17 follow up with you.

18 MR. MELAMED: Okay.

19 Happy to go off the record.

20 THE VIDEOGRAPHER: Okay. We're off the 02:53:24
21 record. It's 2:53 p.m.

22 (Recess taken.)

23 THE VIDEOGRAPHER: We're back on the
24 record. It's 3:18 p.m.

25 Q. (By Mr. Melamed) Before the break we 03:18:46

HIGHLY CONFIDENTIAL

1 were talking about the Can and Did tables. 03:18:48

2 Do you remember that?

3 A. Yeah, I remember talking about those.

4 Q. Does the Can table graph calls that were
5 made by an app toward individual users' data? 03:19:03

6 A. No. My understanding is that the Can
7 tables track the types of information that -- that
8 the API nodes and fields that an app could access.

9 Q. Does not -- let me withdraw that.

10 What about the Did tables? Do the Did 03:19:35
11 tables track to an individual's user data that was
12 accessed?

13 A. My understanding is that the -- the Did
14 tables include information about -- that has been
15 shared with -- has been accessed by an app. I 03:19:52
16 can't say for certain if it includes the -- the
17 user IDs whose information was -- was accessed.

18 Q. Is the answer the same regarding whether
19 the Did tables include a replacement user ID or
20 other identifying information that would link 03:20:18
21 the -- the data that was accessed to an individual
22 user?

23 A. I -- I -- I'd be -- as I sit here today,
24 you know, not entirely sure of the precise
25 information that's logged in that -- in that table. 03:20:40

Page 786

HIGHLY CONFIDENTIAL

1 Q. Who would you ask to determine whether 03:20:48
2 the Did table included information about individual
3 users whose data had upon accessed by apps?

4 A. To answer a question of that specificity,
5 I -- I'd speak to Mr. Molaro and see if he knew the 03:21:08
6 answer.

7 Q. What types of user data did Facebook
8 share or make accessible to third parties?

9 MR. SCHWING: Objection. Vague.

10 THE DEPONENT: The -- the amount of -- 03:21:46
11 the types of user data that Facebook has made
12 available to -- to third parties via the Facebook
13 developer platform has -- has changed over time.

14 Typically the Facebook developer platform would
15 emit information about the -- the user who was 03:22:02
16 using the application who was integrated with the
17 API and typically access to information on their
18 Facebook profile which was made available via the
19 API.

20 Q. (By Mr. Melamed) Does Facebook have an 03:22:28
21 internal taxonomy of the types of user information
22 that it made available via the API?

23 MR. SCHWING: Object to form.

24 THE DEPONENT: The way API works is
25 organized around a concept of nodes and edges, and 03:22:49

Page 787

HIGHLY CONFIDENTIAL

1 the Graph API is organized around this concept of 03:22:55
2 nodes and edges and fields on those nodes. And so
3 that -- that concept is -- is relatively well --
4 well understood.

5 Q. (By Mr. Melamed) And you mentioned that 03:23:15
6 the type of user information that Facebook shared
7 or made accessible to third parties has changed
8 over time, correct?

9 A. Sorry. The -- which information has been
10 made available to third parties has -- has changed 03:23:31
11 over time? Sorry. So that's probably what I was
12 referring to.

13 Q. Okay. How has the information that was
14 made available to third parties changed over time?

15 MR. SCHWING: Object to form. 03:23:52

16 THE DEPONENT: So one of the ways that
17 the information made -- made available to third
18 parties has changed over time involves the -- the
19 type of IDs which are emitted via the -- the
20 Facebook developer platform. 03:24:06

21 In its inception, the API emitted
22 canonical user IDs but over time has moved to app
23 scoped user IDs and page scoped user IDs as -- as
24 the identifying mechanisms for users. That's --
25 that's one example of the ways in which the 03:24:29

Page 788

HIGHLY CONFIDENTIAL

1 information that's emitted has changed over time. 03:24:31

2 Q. (By Mr. Melamed) Are there other
3 examples of the ways in which the user information
4 that Facebook emits to third parties has changed
5 over time? 03:24:43

6 A. So another example in which the Facebook
7 emits user information has changed over time
8 involves the advent of platform permissions, which
9 were a concept introduced in, I think, 2010, which
10 allowed users to grant applications access to 03:25:04
11 specific subsets of their profile information, for
12 example.

13 Q. Are there other changes in the way the
14 user information has -- is emitted via APIs?

15 A. Other ways in which the -- help me 03:25:36
16 understand what you mean by "the way." Do you mean
17 from a more technical perspective or some other
18 form?

19 Q. Fair enough. You just gave two examples
20 of changes. I'm looking for other changes. And as 03:25:47
21 you sit here today, you may not know each
22 individual change that was made over the -- the
23 decade-plus time period we're talking about, but
24 you've hit on a couple of -- of large changes,
25 right? The way in which IDs were emitted and the 03:26:01

Page 789

HIGHLY CONFIDENTIAL

1 way that permissions came into being. 03:26:05

2 I'm asking for other changes in the way
3 that user data was emitted over time that are
4 similar -- similar to -- in scale to those.

5 Does that make sense to you? 03:26:22

6 MR. SCHWING: Object to form.

7 THE DEPONENT: So let -- let me see if I
8 can think of some other examples. Just give me a
9 second. I want to make sure I give you an example
10 that's valuable. 03:26:59

11 So another example that I think is worth
12 calling out is the advent of API versioning as --
13 as a way in which the information that is made
14 available to third parties has changed over time.

15 Prior to the advent of API versioning, 03:27:24
16 APIs would configure the way in which they wanted
17 information made available to them. With the
18 advent of API versioning, developers could request
19 the API version they wanted at the time they made
20 the API call. 03:27:46

21 So I think that's another example in
22 which the way the information was emitted over time
23 changed.

24 Q. (By Mr. Melamed) Are there any other
25 examples that you can think of of the ways in which 03:27:56

Page 790

HIGHLY CONFIDENTIAL

1 information was emitted over time changed? 03:28:00

2 A. Another example I can think of is that in
3 the earliest -- early iterations of the platform,
4 there was a technology called FBML, which allowed
5 developers to request user information in a 03:28:21
6 XML-like format that was deprecated sometime in
7 2011 or 2012, I believe.

8 Q. Any other examples you can think of of
9 the ways in which information was emitted over time
10 changed? 03:28:53

11 A. Another example I can think of is the way
12 that user authentication was performed within
13 Canvas applications on the Facebook developer
14 platform.

15 I recall in the original version, the 03:29:12
16 access token and user IDs were emitted to a
17 developer in a query string redirect in response to
18 their authorization request, and I recall at some
19 point that that was changed to passing those
20 informations in the fragment of the URL rather than 03:29:34
21 the query string.

22 Q. Do you recall when that change occurred?

23 A. I think that change occurred in -- in
24 around 2010, 2011, but I'm -- I'm not 100 percent
25 confident on the date, but around that time. 03:29:54

Page 791

HIGHLY CONFIDENTIAL

1 Q. Do you recall any other changes in the 03:29:56
2 way that information was emitted over time?

3 A. Another example I can think of is the
4 change from the rest API to the Graph API. The
5 rest API was Facebook's API design launched in 2007 03:30:16
6 or 2008 along with the original Facebook developer
7 platform. The Graph API was launched in 2010, as I
8 understand it.

9 And those were two different mechanisms
10 of -- of -- of ways in which developers could 03:30:40
11 access user information via Facebook platform.

12 Q. Are there other examples you can think of
13 of the way in which the data that was emitted
14 changed over time?

15 A. Sorry. Examples in which the -- the way 03:31:06
16 that data that was emitted?

17 Q. I'm sorry. The term we've been using has
18 been "information," so I didn't mean to change the
19 term.

20 Are there other examples you can think 03:31:14
21 of -- of the way that information was emitted over
22 time changed?

23 A. At a high level, the Facebook API has
24 developed over -- you know, the Graph API in
25 particular has developed over -- over several 03:31:37

Page 792

HIGHLY CONFIDENTIAL

1 years, and there have been new fields added, edges 03:31:40
2 and objects taken away, and permissions changed as
3 well.

4 So a whole range of -- of ways in which
5 information was -- was made available or the way -- 03:31:56
6 you know, what apps had access to what has changed
7 over time.

8 Q. I want to go back to the list you just
9 gave and ask a few questions about each example.

10 So you started with the types of IDs that 03:32:15
11 were available, and you said at the inception it
12 was canonical IDs.

13 Can you explain what you mean when you
14 meant when you used the "canonical"?

15 A. Yes, when I use the phrase "canonical," 03:32:30
16 I'm referring to a Facebook user's ID in the
17 Facebook database that was created for them when
18 they signed up to Facebook.

19 Q. And what is the difference between that
20 and an app scoped ID? 03:32:52

21 A. An app scoped ID is an ID for a user
22 which is stable within the context of a particular
23 app, but that ID for that user may differ between
24 applications.

25 Q. And what is the difference a canonical 03:33:15

HIGHLY CONFIDENTIAL

1 Facebook ID and a page scoped ID? 03:33:18

2 A. It's similar to an app scoped user ID
3 except the user ID is different for the same user
4 within the context of different pages.

5 Q. When did Facebook stop emitting canonical 03:33:39
6 IDs?

7 A. There are circumstances in which
8 canonical IDs are likely still being emitted today.

9 Q. When did Facebook commence app scoped
10 IDs? 03:34:02

11 A. Facebook began emitting app scoped user
12 IDs in April 2014.

13 Q. And when did Facebook commence using page
14 scoped IDs?

15 A. The existence of page scoped IDs began 03:34:22
16 later and was used in the Messenger app, a
17 Messenger API context, I think, first; and then was
18 later brought to the Graph API when interacting
19 with pages.

20 I think the time was -- was -- was around 03:34:43
21 2015, 2016 that -- that those changes began to be
22 made.

23 Q. Why was the page scoped ID -- let me
24 withdraw it and restate it.

25 Is there a reason that the page scoped ID 03:35:02

Page 794

HIGHLY CONFIDENTIAL

1 was not started at the same time of the app scoped 03:35:05

2 IDs with Facebook?

3 A. The changing of the ID scheme is -- is a

4 significant change for developers. The move to

5 page scoped IDs in the Graph API, my understanding 03:35:27

6 was done to unify the ID space between the Graph

7 API and the messaging -- the business messaging and

8 the Facebook Messenger for Business APIs.

9 Q. Was the development of the app scoped IDs

10 a significant undertaking? 03:35:52

11 MR. SCHWING: Object to form.

12 MR. MELAMED: I'm sorry. Let me rephrase

13 that.

14 Q. (By Mr. Melamed) You said the changing

15 of an ID scheme is a significant change for 03:36:03

16 developers in your prior answer.

17 So my question is: Was -- was the change

18 to an app scoped ID a significant change for

19 developers at Facebook?

20 A. Sorry. Can you help me understand. Are 03:36:18

21 you asking whether or not it's a significant change

22 for developers or it was a significant

23 development -- it took significant time development

24 for Facebook?

25 Q. Did it take significant time to develop 03:36:28

Page 795

HIGHLY CONFIDENTIAL

1 app scoped IDs at Facebook? 03:36:30

2 A. The developer -- the development of app
3 scoped IDs involved several engineers over -- over
4 several months, so it -- it wasn't an insignificant
5 amount of work, but it's hard for me to know what 03:36:46
6 "significant" means, you know, at Facebook's
7 context. There's all kinds of things that...

8 Q. Understood. I was trying to use the
9 language you had used, but I understand what you're
10 saying. 03:37:00

11 A. So -- so to be clear, when I used the
12 language, my -- my assertion was that it's a -- it
13 was a significant change for developers to -- to --

14 Q. Sorry.

15 A. -- to -- 03:37:12

16 Sorry. Go ahead.

17 Q. I'm sorry for interrupting you.

18 When you say "a significant for
19 developers," do you mean significant change for
20 third-party developers? 03:37:20

21 A. Yes. It -- it would mean a significant
22 change for third-party developers.

23 Q. Do you know whose impetus it was to
24 change to app scoped IDs?

25 A. I don't think it was any particular 03:37:38

Page 796

HIGHLY CONFIDENTIAL

1 person's impetus. It -- the -- the concept, I 03:37:40
2 recall being discussed internally by several
3 people, and so I'm not -- I'm not sure there was
4 any one person who -- whose impetus it was to
5 change to app scoped IDs. 03:37:57

6 Q. Do you recall when these first
7 discussions occurred concerning changing to app
8 scoped IDs?

9 A. There were likely discussions that --
10 that I was not a part of. The first time I've -- I 03:38:12
11 recall becoming aware of them as a -- this is a
12 concept, and I think reviewing documents in which
13 they were discussed, is around, you know, late
14 2013.

15 Q. Why was the change made to app scoped 03:38:35
16 IDs?

17 A. There were a number of reasons why app
18 scoped IDs were seen as a valuable change. The
19 first is that it would allow -- would make it hard
20 for developers to collect data from multiple 03:39:00
21 applications and merge it together into a single
22 dataset.

23 Q. So before app scoped IDs were used and
24 during the time when canonical -- let me break it
25 down into two questions. Sorry. 03:39:21

Page 797

HIGHLY CONFIDENTIAL

1 Before app scoped IDs were used, is it 03:39:23
2 accurate to say that canonical IDs were used?

3 A. Before app scoped IDs came into use,
4 Facebook developer platform would have emitted
5 canonical IDs user IDs to refer to -- to users. 03:39:40

6 Q. And during that time that canonical IDs
7 were used to refer to users, it was easier for
8 developers to collect data from multiple
9 applications and merge it together in a single
10 dataset than it would be later when app scoped IDs 03:39:57
11 were used, correct?

12 MR. SCHWING: Object to form.

13 THE DEPONENT: With canonical IDs, if a
14 developer owned or -- or used multiple apps, then
15 it would have been technically possible for them to 03:40:18
16 take data from those two apps and link it together
17 under the same canonical user ID.

18 Q. (By Mr. Melamed) In your response, you
19 just said it would have been technically possible
20 for developers to link data from two apps using a 03:40:35
21 canonical ID, correct?

22 A. It would have been technically possible
23 for them to do so.

24 Q. Is there anything other than technology
25 that prevented them from doing so? 03:40:54

HIGHLY CONFIDENTIAL

1 MR. SCHWING: Object to form. 03:41:01

2 THE DEPONENT: It's -- it's possible that
3 Facebook's platform policies prevented or were --
4 or asked developers not to share information
5 between apps, but exactly how those policies were 03:41:13
6 written and how they were -- how they were -- yeah,
7 how they were written and changed over time is --
8 is, you know -- is something kind of -- I think
9 other people are better placed to answer than me.

10 So I'm -- I'm not a complete expert on 03:41:31
11 Facebook's platform policies.

12 So hopefully that -- hopefully that gives
13 you an answer.

14 Q. (By Mr. Melamed) Understood. I just
15 want to clarify so I understand your testimony 03:41:43
16 about that.

17 Was there something in the policies that
18 would have made it impossible for developers to
19 link information from different apps that used the
20 same canonical ID? 03:41:57

21 MR. SCHWING: Outside the scope of the
22 deposition. Object to form.

23 THE DEPONENT: So policies are a --
24 you know, a way of Facebook telling developers what
25 Facebook thinks is -- i's appropriate or not with 03:42:17

Page 799

HIGHLY CONFIDENTIAL

1 the information. So -- and, again, as I said, like 03:42:22
2 I'm not an expert in what Facebook's policies did
3 and did not permit at any given time.

4 So a policy -- a platform policy is a
5 written document. That doesn't, you know, prevent 03:42:32
6 a user doing something or -- sorry. Let me back
7 up.

8 Doesn't prevent a developer from -- from
9 doing something, but it -- it's a clear statement
10 that that is not something Facebook would -- would 03:42:47
11 have approved of, if indeed there was a policy
12 written to that effect.

13 Q. (By Mr. Melamed) Thank you. That helps.

14 I think this is a good transition to
15 topic 2d, where it's my understanding that Facebook 03:43:05
16 has identified somebody else to testify about 2d,
17 except that you are going to testify about it today
18 concerning a technical aspect relating to the
19 platform integrity team, and the topic is "how
20 Facebook ensured third parties' use of data and 03:43:26
21 information is limited to the use case."

22 So can you tell me what is the technical
23 aspect related to platform integrity team
24 concerning how Facebook ensured third parties' use
25 of user data they acquired from Facebook was 03:43:41

HIGHLY CONFIDENTIAL

1 limited to the use case? 03:43:45

2 A. So there's a number of techniques that
3 the platform integrity teams would have used to
4 attempt to identify developers who were accessing
5 or using data in -- in -- in different ways, in 03:44:04
6 ways that was against policy.

7 One of those examples is that Facebook
8 had a mechanism for reading the privacy policy and
9 term of service URLs to make sure the -- the
10 developer had provided for their application to 03:44:31
11 ensure that a -- a valid document existed at the
12 URLs that had been provided. So that's one of the
13 mechanisms.

14 Q. Was that a technology that was developed
15 to ensure that a privacy policy existed at the URL 03:44:52
16 provided?

17 A. Yes, that's technology that was developed
18 to ensure that where a developer runs an
19 application that there was a privacy policy and
20 terms of use document in existence. 03:45:09

21 Q. Did that tool evaluate the content of
22 the -- the privacy policy in any way?

23 A. My understanding is that that tool did
24 not evaluate the content, but there are other
25 mechanisms in -- in place by -- by Facebook that 03:45:30

Page 801

HIGHLY CONFIDENTIAL

1 would evaluate the -- the content of the -- of the 03:45:33
2 privacy policy.

3 Q. Okay. So just focusing on that tool for
4 the purpose of this question.

5 If the privacy policy at the URL provided 03:45:46
6 by an app said our privacy policy is there is no
7 privacy in your data, that tool that you are
8 referencing would have confirmed that a privacy
9 policy existed; is that -- is that accurate?

10 MR. SCHWING: Object to form. Incomplete 03:46:10
11 hypothetical.

12 THE DEPONENT: My understanding is that
13 that tool certainly would have said that a privacy
14 policy existed, but then the evaluation of that
15 privacy policy would have been performed by a 03:46:25
16 different team.

17 Q. (By Mr. Melamed) Okay. Were each of the
18 privacy policies or apps that access user data on
19 the platform evaluated by the -- by anyone at
20 Facebook? 03:46:47

21 MR. SCHWING: Outside the scope of the
22 deposition. Object to form.

23 THE DEPONENT: My understanding is that
24 privacy policies of third-party applications have
25 been audited by operations and policy teams at 03:47:04

HIGHLY CONFIDENTIAL

1 Facebook, but exactly which apps they evaluated the 03:47:11
2 policies for and how they evaluated them is -- is
3 not -- not something I'm an expert in. I think
4 Ally Hendrix is probably best placed to talk about
5 how Facebook operationalized the review of privacy 03:47:29
6 policies and terms of use statements by developers.

7 Q. (By Mr. Melamed) Okay. And just to be
8 clear, that is not -- the qualitative review of
9 privacy policies is not the technical aspect
10 related to platform integrity team that you were 03:47:42
11 prepared to testify about today; is that right?

12 A. The example I've given here is about a
13 technical mechanism for ensuring a privacy policy
14 and terms of use statement existed for -- for an
15 app developer, not how those documents were -- 03:48:02
16 evaluated by -- by the operations teams and policy
17 teams at Facebook.

18 Q. What happened when Facebook determined
19 that no privacy policy existed at the URL provided
20 by an app? 03:48:22

21 A. Different things would have happened
22 depending on what the app -- which app it was. If
23 it was an app where -- there was a partnerships
24 team at Facebook that was responsible for the
25 relationship with that developer, and typically the 03:48:42

HIGHLY CONFIDENTIAL

1 operations team would ask the partnerships team to 03:48:45
2 reach out to the developer to find out why the
3 privacy policy or terms of use statement didn't
4 exist and ask them to -- to provide one or update
5 the -- the URL that was available. 03:48:59

6 For other apps that may not have had a
7 managed partner, the developer operations team
8 would have or could have placed a moratorium on the
9 application, but exactly which moratorium they
10 would have -- have chosen to use, I'm -- it likely 03:49:19
11 depended on a number of factors.

12 Q. And are you prepared to testify today
13 about those factors?

14 A. I can give you some examples of the types
15 of moratoriums that would be applied, but exactly 03:49:36
16 which one would be applied would depend -- would
17 have differed over time and a number of different
18 factors.

19 Q. What are some examples of the moratoriums
20 that would have applied -- could have applied? 03:49:49

21 A. So one example is that Facebook
22 application could be placed into sandbox mode or
23 developer mode, which prevents users who are not
24 listed as developers of the application itself from
25 interacting with it. 03:50:12

HIGHLY CONFIDENTIAL

1 Q. And what are other examples of -- of 03:50:16
2 different types of moratoriums that could have been
3 imposed if no privacy policy was found?

4 A. So other examples, again, of moratoriums
5 that Facebook has employed as -- as our -- as part 03:50:28
6 of our -- as here, includes deleting the app
7 itself, so the app is no longer available on the
8 platform.

9 And then another example of a moratorium
10 would be preventing the app from being able to 03:50:46
11 publish to Facebook.

12 As I said, exactly which moratoriums were
13 applied in the case of -- of a privacy policy or
14 terms of use document not being available is
15 something the developer operations team and policy 03:51:02
16 team are best placed to -- to talk about. I can
17 give you examples of the -- the example -- the
18 moratoriums I'm aware of, having talked to the
19 people involved, but exactly which ones are applied
20 is -- is something that -- that -- that operations 03:51:17
21 and policy teams are best placed to -- to answer.

22 Q. Are there records at Facebook regarding
23 apps for which no privacy policy was found by the
24 technology you described?

25 A. This technology will have -- would have 03:51:39

HIGHLY CONFIDENTIAL

1 ruled in logs as to apps -- the word "detected" as 03:51:45
2 not having one of these documents in their -- a
3 valid document in their -- existing for their
4 application.

5 But the retention, you know, exactly 03:52:00
6 what's in those -- those logs and the -- the
7 duration for which they've been retained is -- is,
8 you know, something I can't -- I can't answer as --
9 as we sit here today. But there would have been
10 logs as part of the existence of the system, yes. 03:52:14

11 Q. Do you know what those logs were called?

12 A. They would have been tables relating to
13 the name of the system in -- in Hive, most likely.
14 But I -- I -- you know, I don't know the exact name
15 of -- of the tables that were -- that were -- that 03:52:34
16 were created to log this information.

17 Q. Does this technology that you described
18 whereby Facebook would evaluate whether there
19 existed a value -- a valid document at the URL
20 provided by the developer for its privacy policy, 03:53:03
21 does this technology still exist today?

22 MR. SCHWING: Object to form.

23 Q. (By Mr. Melamed) Can I just restate the
24 end of that.

25 Does the technology describe -- is the 03:53:19

HIGHLY CONFIDENTIAL

1 technology you described still used by Facebook 03:53:21

2 today?

3 MR. SCHWING: Same objection.

4 THE DEPONENT: My understanding is that

5 that technology is still in place as part of our 03:53:31

6 efforts to ensure developers are representing their

7 apps and their behaviors to use as appropriately.

8 Q. (By Mr. Melamed) And am I correct in

9 understanding that you do not know the name of the

10 table that records -- that logs the information 03:53:51

11 about apps that do not have a valid document at the

12 URL provided for their privacy policy?

13 A. So in preparation for -- for today, I

14 spoke to, you know, people involved in -- in these

15 efforts about, in general, the techniques and tools 03:54:07

16 which are applied. This was one of the examples

17 that was -- you know, we talked about. You know,

18 so I have a high-level understanding of -- of that

19 system and its existence, but the precise name of

20 the table in -- in Hive, that's -- that's something 03:54:29

21 I'm afraid I don't have in my head today.

22 Q. And you mentioned -- you used the phrase

23 "valid document," but the tool automatically --

24 there's -- let me see if I'm describing this

25 correctly. 03:54:50

Page 807

HIGHLY CONFIDENTIAL

1 So Facebook wrote code -- engineers at 03:54:50
2 Facebook wrote code to determine whether a valid
3 document existed at the URL provided by the
4 developers for their privacy policy; is that an
5 accurate statement of the -- of the way the tool 03:55:04
6 worked?

7 MR. SCHWING: Object to form.

8 THE DEPONENT: That matches my high-level
9 understanding of -- of how this tool worked, yes.

10 Q. (By Mr. Melamed) Do you know what 03:55:17
11 qualified as a valid document in that context?

12 A. The system would likely have checked for
13 a number of things. For example, the -- whether or
14 not when we -- when the system accessed that URL,
15 whether or not an error code was returned by the -- 03:55:39
16 the server.

17 So that would be certainly one of the
18 things that that the system was checking for.

19 Q. Are you prepared to testify regarding
20 what constituted a valid document in this review 03:55:56
21 process?

22 A. So, again, I can give you my high-level
23 understanding of how the system works from -- from,
24 you know, talking to the -- to the people involved.
25 And in preparation for today, we talked about a 03:56:08

HIGHLY CONFIDENTIAL

1 large number of -- of different systems at -- at 03:56:13
2 the company. So I can give my high-level
3 understanding of how that -- of how that system
4 worked.

5 My understanding is it would have 03:56:25
6 accessed the URL that was provided by the
7 developer, looked for a number of things that would
8 have determined, in Facebook's estimation, as to
9 whether or not that -- that document was considered
10 valid or not. 03:56:41

11 Q. Are you familiar with the use of the text
12 lorem ipsum as placeholder text for when designing
13 or writing a document?

14 A. Yes, I'm aware of the -- the practice of
15 using lorem ipsum. 03:56:58

16 Q. Are you -- do you know whether the tool
17 you're describing which looked at the URL that a
18 developer had provided for a privacy policy would
19 have determined that a valid document existed if
20 the privacy policy URL linked to text that had 03:57:23
21 lorem ipsum placeholder text?

22 A. So the precise nature of how this system
23 behaved is -- and whether or not it would have
24 returned a valid document or not, determination
25 in -- in that respect, is -- a level of detail I -- 03:57:48

HIGHLY CONFIDENTIAL

1 I -- I don't have in my head right now. So hard -- 03:57:52
2 hard for me to answer that question in that level
3 of specificity, I'm afraid.

4 Q. I'm -- I'm not trying to get you to
5 testify beyond your knowledge. I'm just -- the 03:58:05
6 indication we were provided is that you were
7 prepared to talk about a technical aspect relating
8 to platform integrity team, and you identified this
9 as the technical act -- a technical aspect you were
10 prepared to identify. So I'm just trying to 03:58:23
11 understand the extent of your testimony.

12 MR. SCHWING: And, Matt -- and I want you
13 to continue your questioning, so I'll be brief
14 here.

15 Just for the record, we -- we did 03:58:31
16 indicate in the letter that -- that he would
17 generally speak to this issue to give you
18 information on it with the idea that could then,
19 you know, learn about it, if you need to ask other
20 witnesses about it, et cetera. 03:58:44

21 But I want to make the record clear that
22 we did use the word "generally," I believe.

23 Q. (By Mr. Melamed) Are there other
24 technical aspects relating to the platform
25 integrity team that you -- that you are prepared to 03:58:57

Page 810

HIGHLY CONFIDENTIAL

1 testify about today concerning how Facebook ensured 03:59:00
2 third parties' use of user data they acquired from
3 Facebook was limited to the use case?

4 A. So another example of -- of a technique
5 that the platform integrity team used was a system 03:59:18
6 or set of systems that evolved over time that
7 looked for unusual patterns of API calling
8 behavior.

9 So that's another -- another type of
10 example. 03:59:39

11 Q. How were unusual patterns of API calling
12 behavior defined?

13 Let me restate that.

14 What constitutes an unusual pattern of
15 API calling behavior? 03:59:56

16 A. The answer to that is somewhat -- in the
17 definition of the integrity teams, one of the
18 challenges of working in -- in a -- in a space like
19 this is the adversarial nature of it, and so some
20 developers -- you know, what -- what is unusual or 04:00:21
21 is considered unusual by the integrity team is a
22 set of things that changes over time and will be
23 different from context to context.

24 Typically and generally, though, what the
25 team would be looking for is, for example, cases 04:00:37

Page 811

HIGHLY CONFIDENTIAL

1 where apps were regularly hitting rate limits or 04:00:42
2 apps were making a high number of API calls for a
3 set of methods that -- that they were -- that they
4 were calling the API.

5 So those are two examples of what might 04:00:58
6 be considered anomalous.

7 Q. What are the rate limits?

8 A. So in the context of the Graph API? Is
9 that what you mean by -- how would you like me to
10 answer generally in -- in -- can you help me 04:01:16
11 understand the kind of answer -- what kind of
12 answer you're expecting, generally or specifically
13 as it applies to the Graph API?

14 Q. In the context of the answer you just
15 provided, where you said that one way a platform 04:01:27
16 integrity team looked at unusual API calling
17 behavior was by looking at unusual or unusual rate
18 limits; is that right?

19 A. More that if an app was making a lot of
20 API calls to -- to a specific method or against the 04:01:51
21 API and hitting -- hitting rate limit.

22 Q. Okay. Thank you for the clarification.

23 What did you mean by "rate limits" in
24 that context?

25 A. So in that context, a rate limit refers 04:02:05

HIGHLY CONFIDENTIAL

1 to a -- a number of times that an API -- an app, 04:02:08
2 third-party application, can call an API within a
3 given time window. The exact definition of that
4 is -- is -- will have changed over time, but at a
5 high level, that's -- that's what we mean by rate 04:02:30
6 limit.

7 Q. And who sets or establishes the rate
8 limits?

9 A. The platform integrity team would likely
10 have been responsible for -- for -- for setting the 04:02:46
11 rate limits or being -- certainly being consulted
12 for how they were -- how they were set.

13 Q. And who at the platform integrity team
14 would you speak to to understand how rate limits
15 were set over time at Facebook during the time 04:03:07
16 period of this case?

17 A. Given the -- the -- the time period of
18 the case is so wide, I would start by trying to
19 speak to somebody in the -- in the platform
20 integrity team today to see if they had more 04:03:29
21 information. I -- I have information and have a --
22 implemented at various times, but, you know, the --
23 the mechanism of rate limiting across -- across 15
24 years would have -- would have changed.

25 Q. And who would you reach out to today if 04:03:48

HIGHLY CONFIDENTIAL

1 you wanted to talk -- on the platform integrity 04:03:50
2 team today if you wanted to talk about rate
3 limiting over time?
4 A. I would start by reaching out to -- to
5 Dan Xu and see if he was able to answer the -- the 04:04:03
6 kind of specific questions that I'm -- you know,
7 beyond what I'm able to answer myself.
8 Q. Can you spell his last name, please.
9 A. That's X-U.
10 Q. You also noted that another unusual 04:04:27
11 pattern of API calling behavior where API calls for
12 particular sets of methods, right?
13 A. Yes. And from speaking to the platform
14 integrity team, one thing that may have built --
15 has evolved over time is a system to look for high 04:04:54
16 levels of -- of API calls relative to the number of
17 users using the application, for example.
18 Q. You mentioned that evolved over time,
19 correct?
20 A. My understanding, from talking to the 04:05:12
21 people involved, is that -- and as it would be
22 common in any adversarial space, as technology
23 evolves, the first versions might be relatively
24 simple and rules based, and -- and more
25 sophisticated ones might be -- you know, might 04:05:30

Page 814

HIGHLY CONFIDENTIAL

1 be -- would have been developed over time -- for 04:05:34
2 example, machine-based models and so on.

3 Q. Do you know when the first versions of --
4 the first version of this tool was built by
5 Facebook? I'm not speaking outside the context of 04:05:52
6 this case.

7 A. Sure. This is one of the things that
8 people have -- have -- when I've talked to the
9 people involved in this, this is certainly
10 something they -- they reference from around the -- 04:06:09
11 in existence around the 2011, 2012 time frame. So
12 my understanding is that such a system was in
13 place, you know, even a basic one then. So that's
14 the -- that's the kind of earliest example I've --
15 I've -- I've heard about when talking to the people 04:06:31
16 involved in preparation for today.

17 Q. How were the reports or notifications
18 that there were API calls -- high levels of API
19 calls for the number of users on a particular app,
20 what kind of reports were generated reflecting the 04:06:48
21 apps that were on that list?

22 A. My understanding from -- again, from
23 talking to the people involved is that one of the
24 forms that that would have taken is -- is a
25 dashboard that -- that was made available to -- to 04:07:08

HIGHLY CONFIDENTIAL

1 developer operations, or DevOps, that they could 04:07:11
2 look at and see a list of apps by, you know --
3 you know, that were making a large number of API
4 calls relative to the number of authenticated
5 users. 04:07:32

6 Q. So putting this together, is it right to
7 say that around 2011 or 2012 -- and you're not
8 specific as to time period, but generally those --
9 those years -- there was a dashboard that would --
10 that was available to DevOps that identified apps 04:07:49
11 making a high level of API calls for the number of
12 users those apps had; is that right?

13 A. Right. The -- the -- from my
14 understanding the -- yes, around -- around that
15 time, possible -- possibly later, the exact form 04:08:12
16 that that information would have taken would -- the
17 way in which it would have been made available to
18 DevOps may -- may have changed.

19 But, yes, the -- the -- there were --
20 there was a mechanism in place to allow DevOps to 04:08:26
21 see apps that were making an unusual number of API
22 calls relative to the number of users using the
23 app.

24 Q. Were there -- sorry. Let me withdraw
25 that. 04:08:42

HIGHLY CONFIDENTIAL

1 Are there records that still exist of the 04:08:43
2 apps that were making a high number of API calls
3 for the number of users starting in the 2011 or '12
4 time period?

5 MR. SCHWING: Object to form. 04:09:00

6 THE DEPONENT: So my understanding is
7 this -- this -- certainly logging from 2012
8 onwards, as I understand it, of the API calls, the
9 apps were making to particular methods.

10 So I know that that information has 04:09:21
11 been -- has been stored and, in fact, made
12 available in this case, as I understand it.

13 It's -- it's possible that there is a way
14 to reconstruct whether or not those calls were
15 unusual relative to number of apps, but again, 04:09:42
16 exactly what Facebook's data retention policy is in
17 this -- is -- is hard to that level of detail to
18 know.

19 So it may be possible to recreate those
20 dashboards, but -- but I can't for certain -- I 04:09:56
21 can't with certainty say that that would be
22 possible today.

23 Q. (By Mr. Melamed) You -- you mentioned
24 from 2012 forward it's your understanding that
25 information has been provided in this case 04:10:06

HIGHLY CONFIDENTIAL

1 reflecting the logging of API calls to particular 04:10:07
2 methods by particular apps, correct?

3 A. That's correct, yeah.

4 Q. What -- do you know what the name -- is
5 there a name for that information or that table or 04:10:19
6 whatever it is?

7 A. I think I'm thinking of here is the API
8 hits method R table, which I -- correctly styled is
9 API_method -- API_hits_method_R.

10 And I apologize, Rebecca, for making you 04:10:40
11 have to write that down.

12 Q. Okay. And have you heard that referred
13 to as "the method table," just as a stand-alone
14 two-word name without the underscores?

15 A. I've heard that referred to as "the 04:10:58
16 method table."

17 Q. Is that your understanding of what is
18 being referred to when people talk about the method
19 table?

20 A. That's my understanding of what's being 04:11:04
21 referred to when people talk about the method
22 table.

23 Q. Going back to the -- the technology that
24 exists to check whether privacy policies or valid
25 documents exist at the URL for each app. 04:11:21

HIGHLY CONFIDENTIAL

1 Do you recall talking about that? 04:11:24

2 A. Yeah, I recall talking about that.

3 Q. And there were some questions you weren't

4 able to answer about whether valid -- what the

5 meaning of a valid document was, for example, 04:11:31

6 correct?

7 MR. SCHWING: Object to form.

8 THE DEPONENT: The precise nature of how

9 that system determines whether a document is valid

10 or not is a -- a level of detail I don't have right 04:11:42

11 now and will have changed over time.

12 Q. (By Mr. Melamed) Who would you talk to

13 to figure out how that had changed over time, how

14 what a valid document was had changed over time?

15 A. I would attempt to speak to somebody on 04:12:01

16 the platform integrity team to see if they could

17 answer a question with that level of specificity.

18 Q. And who would you go to now if you wanted

19 to start that inquiry?

20 A. I would start with Dan Xu. 04:12:15

21 Q. Are there other technical aspects

22 relating to the platform integrity team concerning

23 how Facebook ensured third parties' use of user

24 data that they acquired from Facebook was limited

25 to the use case that you are prepared to testify 04:12:34

Page 819

HIGHLY CONFIDENTIAL

1 about? 04:12:36

2 A. Another example that -- that I've learned
3 about by preparing for this case is a system which
4 looks for apps which are similar to those which
5 have been enforced upon by our platform policy and 04:12:54
6 operations teams.

7 Q. Do you know when that technology was
8 implemented?

9 A. So this activity has likely been done in
10 some form for -- for quite some time. Early in 04:13:24
11 its -- early in -- earlier in the gestation, this
12 would have been a more manual process, and my
13 understanding that since a -- an automated way of
14 doing it is now -- is now in place.

15 And that's been developed more recently 04:13:44
16 using machine learning to train to detect apps
17 which are behaving similar -- similarly to apps
18 which have previously been enforced upon by our
19 operations team.

20 Q. When did that more automated process 04:14:02
21 commence?

22 A. The precise date, I -- I don't have
23 access to the precise date that -- that -- that
24 that activity -- that that automated system came
25 into being. From talking to the people involved, 04:14:19

Page 820

HIGHLY CONFIDENTIAL

1 you know, a very simple automated -- some very 04:14:22
2 simple automated processes were likely in use in
3 around 2012, 2013. But, again, the specifics,
4 I'm -- you know, I just -- I don't have that level
5 of detail available to me right now. 04:14:36

6 Q. And in saying you don't have that level
7 of detail available to you now, you can't -- are
8 you able to speak about that, what you referred to
9 as a "simple automated process" that you thought
10 was in -- in place in 2012 or 2013 time period? 04:14:55
11 Can you talk about how that simple process worked?

12 MR. SCHWING: Object to form.

13 THE DEPONENT: So I -- I can talk more
14 concretely about the -- I talk more about the
15 systems that are in place today as I understand 04:15:15
16 them, because in preparation for -- for today's
17 case, most of the people I spoke to had, you know,
18 knowledge of the most recent systems in place.

19 Q. (By Mr. Melamed) And when you're talking
20 about the systems in place today, how long have 04:15:33
21 those systems been in place?

22 A. Again, exactly -- exactly which systems
23 are in -- in -- in place today and -- and when they
24 were started, they were like -- I -- again, I don't
25 have the -- the exact dates as to when, you know, 04:15:55

HIGHLY CONFIDENTIAL

1 those systems were first implemented or how it 04:15:59
2 operated over time. I've, you know, done the best
3 job I can to prepare. I talked to a number of
4 people who -- who were involved in these systems,
5 but the precise dates in which they existed is -- 04:16:12
6 is not something I have -- recall.

7 Q. Without precision, are you able to say
8 about when the systems that you were prepared to
9 testify about today started being used at Facebook?

10 A. The exact lineage of -- and when these 04:16:37
11 systems came into being, like I -- I don't have the
12 precise -- the precise timelines, I'm afraid. And
13 as I say, I think these -- these systems overlap
14 and, you know, were developed over a long period of
15 time, and so hard to give very specifics about 04:16:56
16 exactly what the behavior was and what the major
17 milestones of evolution are.

18 Q. Do you know if the systems that are in
19 place today were implemented after March 2018?

20 A. It's likely, given that there's a -- a 04:17:22
21 team who works on this, that they've been
22 constantly developing -- developing these kinds of
23 systems. And so, yes, there -- there will be
24 systems in place today that were not in operation
25 around 2018. 04:17:39

HIGHLY CONFIDENTIAL

1 Q. You mentioned that there are multiple 04:17:46
2 systems in this context of systems to identify apps
3 that behave similarly to those that have been
4 kicked off the platform, correct?

5 A. The -- the -- it's likely there are 04:18:05
6 different -- different parts to the system that --
7 that looks for anomaly detection and similarity
8 detection. So hard -- again, like, I can talk
9 about these in -- high-level concept of what they
10 intend to do and -- and how they -- what their 04:18:23
11 functionality -- you know, how they are used.

12 The detail of the technical
13 implementation is something best left to an
14 engineer.

15 At a high level, the job of the 04:18:36
16 assistants is to look for an application or
17 applications which the -- the policy and operations
18 team have -- have enforced upon and then look for
19 things like patterns of API calling behavior which
20 are similar and things like IP addresses and where 04:18:55
21 those calls are coming from. Do we see other apps
22 which are -- are coming from a similar data center
23 or similar IP range.

24 And then one of the other examples would
25 be whether or not these apps have developers in 04:19:12

HIGHLY CONFIDENTIAL

1 common, user -- users developers, and are there 04:19:17
2 similarities between those user developers.

3 So pretty typical in an integrity context
4 is the -- you know, the people using -- the people
5 trying to develop bad apps are also trying to be 04:19:30
6 not detected, and therefore the systems in place to
7 detect them need to evolve over time in order to
8 stay ahead of -- of those patterns in behavior.

9 So precisely how -- you know, how these
10 systems are architected and whether or not -- which 04:19:49
11 different pieces there are is, you know, a level of
12 engineering detail. From -- from a product
13 perspective, those are the -- the goals of the
14 system and the types of things that those systems
15 are looking for in order to identify other apps 04:20:07
16 that might be behaving inappropriately.

17 Q. To be clear, I'm not asking for
18 engineering-level detail of how exactly how this
19 happened. If I were to look for that information,
20 who would I ask? Or if you were to look for that 04:20:24
21 level of information, who would you reach out to?

22 A. Again, I would speak to one of the -- one
23 of the engineers on the platform integrity team to
24 understand, you know, that -- that level of
25 specificity as to exactly how the systems are 04:20:45

HIGHLY CONFIDENTIAL

1 implemented. 04:20:47

2 Q. Is there a particular person you would
3 reach out to as being somebody you would start
4 with?

5 A. I would start with Dan Xu again. 04:20:59

6 Q. Now, you mentioned, I think, three
7 factors -- and I just want to make sure I have
8 them -- that this tool would have looked at.

9 So one is pattern of API calls, and
10 another is IP addresses, and another is developers 04:21:14
11 in common.

12 Do I have that right?

13 A. Those are three examples I -- I
14 mentioned. My understanding is that the -- the --
15 there are likely more factors involved, and a 04:21:29
16 machine learning system would be looking for a
17 range of factors.

18 Q. Are you aware of any other factors as you
19 sit here right now?

20 A. As I sit here right now, no. So I -- I 04:21:44
21 can imagine some of what they might be, but I think
22 that -- that would be speculating.

23 Q. Do you know when Facebook started looking
24 at the commonalities in API calling behavior
25 between apps that had been kicked off platform and 04:22:02

Page 825

HIGHLY CONFIDENTIAL

1 apps that were presently on platform? 04:22:06

2 A. Yeah. Again, I talked to people involved
3 in -- in integrity who -- who were involved in a
4 number of ways of identifying apps that were
5 potentially doing unusual behavior. The -- looking 04:22:23
6 for apps that were similar to apps that misbehaved
7 is something that was likely going on manually in
8 around 2013, 2014, possibly earlier.

9 But that's when the people I -- I spoke
10 to talked about beginning to -- to perform that 04:22:45
11 kind of activity.

12 Q. Do you know who was involved in that
13 manual review that was happening around 2013, 2014
14 time period?

15 A. I don't know exactly who was involved. I 04:23:06
16 mean, platform integrity team changed over time,
17 too.

18 The -- there were people I spoke to
19 who -- who were involved in the platform integrity
20 team around that time. 04:23:23

21 Q. Who are those people?

22 A. So one name is Eugene Zarashaw.
23 Zarakhovsky was his previous name. So I think he
24 was -- he was involved.

25 Another person that was involved is 04:23:42

HIGHLY CONFIDENTIAL

1 someone called Jonathan Gross. 04:23:45

2 And then the -- exactly how that
3 information is -- was -- was used to enforce upon
4 applications is, again, I think a set of questions
5 for the developer ops and policy teams. I think 04:23:57
6 Ally Hendrix is -- is placed to answer those kinds
7 of questions.

8 Q. Do you know who led the development of
9 the automation of this review of -- and by "this
10 review," I'm talking about the process by which 04:24:16
11 Facebook was looking for similar apps to those that
12 had been kicked off platform.

13 A. The specific name of the -- of the people
14 involved, no, I don't have -- you know, I don't
15 have their names. 04:24:29

16 As I've said, like this is a -- this is a
17 concept that -- that will -- that evolved over --
18 over time and, you know, in its earliest phases
19 would have been a rules-based system or very simple
20 rules-based system and today is -- is -- my 04:24:46
21 understanding is today is a much more -- more
22 complex system employing machine learning.

23 I -- I -- I know the name of the -- of
24 the engineering manager involved more recently, so
25 I -- I, you know, I -- I recall meeting him 04:25:05

Page 827

HIGHLY CONFIDENTIAL

1 recently to talk about this stuff. I can't think 04:25:11
2 of his name right now. I think Jay is his first
3 name, I think.

4 Q. If you remember that at any point during
5 the deposition, just please stop and say, "I 04:25:24
6 remember the name of the person."

7 A. I will. As -- as I've said, in order
8 to -- to prepare for the broad topics to cover
9 today, you know, I had to do a lot of prep across a
10 number of areas. 04:25:41

11 Q. Are there other technical aspects
12 relating to the platform integrity team concerning
13 how Facebook ensured third parties' use of user
14 data they acquired from Facebook was limited to the
15 use case? 04:25:53

16 A. So another technique that I -- I'm aware
17 has been employed is our security teams looking for
18 app scoped user IDs in data dumps that may be
19 available to various developers. So that's a --
20 another -- another common technique that -- that 04:26:29
21 was employed, as I understand it, at various times.

22 Q. And just so we don't have to keep going
23 back to the same question, I'd like to get out as
24 many of these examples -- you know, this is
25 something that you're here to testify about, so I 04:26:43

HIGHLY CONFIDENTIAL

1 just want to get the list of the examples of 04:26:48
2 technical aspects relating to the platform
3 integrity team concerning how Facebook ensured
4 third parties' use of user data they acquired from
5 Facebook was limited to the use case. 04:26:57

6 So you just mentioned security teams, and
7 let's just try and list all of the other ways that
8 you're aware of, if you can do that.

9 A. So another mechanism that is in place
10 today is app review. And so app review is a 04:27:18
11 mechanism by which Facebook asks developers to
12 explain why they want access to a particular piece
13 of information, and then Facebook uses technical
14 means to determine whether or not they can, indeed,
15 request that information from -- from users. So 04:27:43
16 that's another example.

17 Q. Any other examples?

18 A. Another example of how Facebook attempted
19 to ensure that information was not being
20 inappropriately shared with fourth parties, in this 04:28:05
21 case, people that the third-party developer had a
22 relationship with, is technical mechanisms to look
23 for user IDs or access tokens in referrers to
24 social plug-ins embedded on third-party developer
25 websites. 04:28:32

HIGHLY CONFIDENTIAL

1 That's a lot of information, but these 04:28:37
2 things are sometimes complex to explain.

3 Q. Are there any other technical aspects
4 related to the platform integrity team concerning
5 how Facebook ensured third parties' use of the data 04:28:49
6 they acquired from Facebook was limited to use
7 case.

8 A. Those are the main ones that -- that
9 we've -- that were -- were talked through with me
10 when I prepared for this. We talked about app 04:29:08
11 scoped IDs and page scoped IDs. We talked about
12 permissions -- actually, no, we haven't talked
13 about permissions. We should talk about
14 permissions real quick.

15 So permissions is a mechanism, again, by 04:29:24
16 which Facebook attempts to ensure that information
17 is only available to third parties within the
18 context of a particular use case.

19 Q. Let's go through these ones that you just
20 listed. I just want to understand. Again, I'm not 04:29:43
21 asking for the technical mechanisms by which they
22 worked; I'm just asking for time period, general
23 implementation.

24 So you mentioned first the security teams
25 that search for app scoped user IDs in data dumps, 04:29:58

Page 830

HIGHLY CONFIDENTIAL

1 correct? 04:30:04

2 A. My understanding is that's a -- that's an
3 activity that's been performed periodically.

4 Q. Starting about when?

5 A. I don't have the exact dates as to -- as 04:30:15

6 to when that activity was -- was done. Again, app
7 scoped user IDs began to be emitted in -- in

8 April 2014, and so after that is when it would have

9 been, you know, technically possible to --

10 you know, for -- for those IDs to start to show up 04:30:36

11 in third-party data dumps.

12 Q. When you're talking about these
13 third-party data dumps, are you talking about --

14 Have you heard the phrase "dark web"?

15 A. I have heard the phrase "dark web." 04:30:51

16 Q. Are you -- are you talking about data
17 made available by actors on the dark web?

18 A. My understanding from, you know, having

19 spoken to people involved in this is -- the

20 information may have been available over the dark 04:31:10

21 web, but there are other ways in which that

22 information may have been available as -- as well.

23 So it's not -- not just limited -- my understanding

24 is it's not just limited to -- to those sources.

25 Q. Your understanding is this -- this 04:31:26

Page 831

HIGHLY CONFIDENTIAL

1 necessarily only started after app scoped IDs were 04:31:28
2 implemented.

3 But do you know about when this process
4 actually started?

5 A. I don't have the precise dates as to -- 04:31:39
6 as to -- as to when this -- this activity was --
7 was done, no.

8 Q. And so far in your description you've
9 mentioned that this is searching for app scoped
10 user IDs in data dumps. 04:31:53

11 Do you know if there's been any effort to
12 look for canonical IDs in data dumps?

13 A. My understanding is that the same efforts
14 would have looked for canonical user IDs, although
15 the challenge there is that which apps they were 04:32:16
16 emitted from is hard to determine.

17 Q. Do you know whether this effort by the
18 security teams as it relates to the canonical IDs
19 was implemented before app scoped IDs started to be
20 used? 04:32:41

21 A. I'm -- I'm -- I think -- yeah, I'm not
22 aware of -- specifically if this activity was
23 happening -- happening beforehand. It's -- it's --
24 it's likely it was happening in some form, but I --
25 I'd be speculating as to exactly what -- what was 04:33:13

Page 832

HIGHLY CONFIDENTIAL

1 happening in the security teams. 04:33:17

2 Q. Let's move on to app review. You
3 described the process whereby -- or can you
4 describe briefly what app review is, and then you
5 could also say when it started. 04:33:30

6 A. App review is a process by which Facebook
7 requires app developers to request permission to
8 use certain features which are known as "reviewable
9 features" or request certain permissions which are
10 known as "reviewable permissions" in their 04:33:56
11 application.

12 Developers ask -- explain to Facebook why
13 they want these features and why they want to
14 request these permissions from users, and then
15 Facebook determines whether or not, indeed, they 04:34:17
16 can use those features and can request those
17 permissions from users.

18 So that's the process of app review. And
19 app review was instituted for new apps on
20 April 30th, 2014. 04:34:32

21 Q. Did apps that existed prior to
22 April 30th, 2014 ever go through app review?

23 A. Yes. The way app review was instituted
24 is that the apps created for 2014 -- I'm sorry --
25 April 30th, 2014 had to go through app review in 04:35:02

Page 833

HIGHLY CONFIDENTIAL

1 order to continue requesting the permissions they 04:35:09
2 were requesting from users once they were upgraded
3 to API v2.

4 Q. And who led -- who participated from
5 Facebook in the app review process? 04:35:26

6 A. Can you help me understand what you mean
7 by "participated in"? You mean developers --

8 Q. I'm sorry. That was an unclear question.
9 Who are the Facebook employees involved
10 in approving or denying the requested permissions 04:35:43
11 from an app?

12 A. Those would be members of the developer
13 operations team.

14 Q. And was this an automated process or a
15 manual process? 04:35:57

16 A. My understanding, app review is primarily
17 a manual process.

18 Q. And how many -- I'm sorry. You said it
19 started on April 30th, 2014; is that right?

20 A. App review was announced on April 04:36:20
21 the 30th, 2014.

22 Q. When did app review start happening at
23 Facebook? Was that on the same date or a different
24 date?

25 A. My understanding is where Facebook began 04:36:33

HIGHLY CONFIDENTIAL

1 to receive or was ready to receive app review 04:36:35

2 submissions on -- on the same date.

3 Q. Do you know how many people were on the
4 team responsible for conducting app review on -- in
5 April of 2014? 04:36:53

6 A. The precise number of people on the
7 developer operations team, I -- I don't have that
8 information. You know, I don't have that
9 information at hand.

10 Q. Do you know roughly how many people were 04:37:07
11 on that team in 2014?

12 A. I think the questions around DevOps
13 and -- and app review are best asked to Ally
14 Hendrix. She was -- she was much more closely
15 involved in the actual operation of this -- of this 04:37:23
16 program.

17 I can speak to, again, the technical
18 aspects by which it was implemented and how it
19 worked. I think in terms of operation and the way
20 decisions were made and who was responsible for 04:37:34
21 making those decisions, I think Ally is the best
22 person to give you that information.

23 Q. And this is implied by your answer, but I
24 just want to be clear. Are you able to provide
25 that answer? 04:37:47

Page 835

HIGHLY CONFIDENTIAL

1 MR. SCHWING: Object to form. 04:37:48

2 THE DEPONENT: You mean an answer to the
3 number of people who were on the -- the developer
4 operations team in 2014?

5 Q. (By Mr. Melamed) Correct. Can you 04:38:00
6 provide an approximate number of people on the
7 developer operations team in 2014?

8 A. I -- I think it's likely the order of
9 hundreds of -- of reps, but I'm -- I'm not -- like
10 I'm not confident in -- in that answer. 04:38:21

11 My role at the time was to build out the
12 technical infrastructure and even developer-facing
13 infrastructure for -- for how this was enacted and
14 implemented. As I say, I think Ally is the -- is
15 likely the best person to give you information 04:38:38
16 on -- on how it was instituted and operated from a
17 operations perspective.

18 Q. Another technical aspect relating to
19 platform integrity team concerning how Facebook
20 ensure third parties' use of user data they 04:38:53
21 acquired from Facebook was limited to use case that
22 you mentioned is looking for user IDs or access
23 tokens in refers to social plug-ins on third-party
24 developer websites?

25 Is that -- did I get that right? 04:39:12

Page 836

HIGHLY CONFIDENTIAL

1 A. Yes, that's pretty -- pretty close, yes. 04:39:16

2 Q. Was that an automated or a manual
3 process?

4 A. My understanding is the detection was an
5 automated process, and when the detection flagged, 04:39:31
6 there was user IDs or access tokens potentially
7 being admitted, then that was flagged to developer
8 operations to do an investigation.

9 Q. Do you know when that process started,
10 when Facebook started using the process? 04:39:54

11 A. My understanding is that that was
12 something built around 2011 or 2012.

13 Q. Do you know who was responsible for
14 building it around 2011 or 2012?

15 A. The platform integrity team were 04:40:22
16 responsible for -- for building that as -- as --
17 as, you know, it pertains to exactly their -- their
18 scope, making sure the information is -- is
19 appropriately shared with third parties and so on.

20 So I -- I know that they were the team 04:40:39
21 responsible for -- for building it.

22 Q. Do you know if records exist of the
23 developers that were detected through this
24 automated process as having provided user IDs or
25 access tokens in refers to social plug-ins on 04:41:03

Page 837

HIGHLY CONFIDENTIAL

1 third-party developer websites? 04:41:07

2 A. This system would have logged that app
3 time in order to en -- allow operations team to
4 perform an investigation, whether or not that
5 information has been retained, you know, eight or 04:41:25
6 so years later, Facebook standard data retention
7 policies, you know, are shorter than that.

8 So it's possible that information has
9 been retained. I wouldn't know, I'm afraid.

10 Q. Does that effort continue today, the 04:41:45
11 automated effort to look for such information?

12 A. My understanding is technical changes
13 were made to -- to how access tokens and user IDs
14 were emitted to third -- third parties that means
15 that -- that detection is no longer needed. 04:42:04

16 Q. Do you know when those technical changes
17 were made such that Facebook determined the
18 detection was no longer needed?

19 A. I want to say those -- those changes were
20 roughly made in 2013, '14. But, again, that's -- 04:42:22
21 that's my understanding of the rough timelines.

22 Q. When these -- this automated tool
23 detected the existence of user IDs or app tokens
24 as -- as described, did the tool identify the
25 individuals -- the individual Facebook users or IDs 04:42:48

Page 838

HIGHLY CONFIDENTIAL

1 that had been detected? 04:42:52

2 A. I -- I am afraid the precise nature in
3 which that tool operated ten years ago, I have a
4 high-level understanding, which is that it detected
5 whether or not access tokens and user IDs were -- 04:43:10
6 being emitted by an app.

7 Whether or not that tool logged a
8 specific user IDs is a -- is a -- a level of
9 detail, I -- I can't answer, I'm afraid.

10 MR. SCHWING: Matt, we've been going for 04:43:30
11 a while now. I understand you're kind of working
12 on a -- you know, a bit of the topic here, but I
13 wanted to check in with Mr. Cross to make sure
14 he's -- how he's doing, if he needs a break, and
15 kind of, you know, think about when we're going to 04:43:43
16 stop for our next break.

17 THE WITNESS: Yeah, I'd appreciate a bio
18 break, if that's -- if that's possible.

19 MR. MELAMED: That is. I just wanted to
20 follow up with a question about permissions, which 04:43:53
21 you had mentioned as, I think, the last of these
22 techniques. If we can finish those questions now
23 before the break, that would be great. If not, if
24 you need the break, I can return to it after. It's
25 up to you. 04:44:05

HIGHLY CONFIDENTIAL

1 THE DEPONENT: I'll take a break now, if 04:44:06
2 that's okay.

3 MR. MELAMED: Okay.

4 THE DEPONENT: And then come back to that
5 question. 04:44:12

6 MR. MELAMED: Okay. We can go off the
7 record.

8 THE VIDEOGRAPHER: Okay. We're off the
9 record at 4:44 p.m.

10 (Recess taken.) 04:44:17

11 THE VIDEOGRAPHER: We're back on the
12 record. It's 4:57 p.m.

13 Q. (By Mr. Melamed) Mr. Cross, the last of
14 the techniques we were talking about related to the
15 technical aspects of how the -- how platform 04:57:29
16 integrity team ensured third parties' use of user
17 data they acquired from Facebook was limited to the
18 use case or permissions.

19 Do you remember that?

20 A. Accessing permissions, yeah. 04:57:46

21 Q. When were permissions implemented?

22 A. Permissions as we -- as they're known
23 today were first introduced in May 2010.

24 Q. And what do you mean by "known today"?

25 A. So these are permissions in the -- in the 04:58:13

Page 840

HIGHLY CONFIDENTIAL

1 sense that these are things that developers can 04:58:14
2 request from users and then once the user is
3 granted those permissions, then the app has access
4 to information that are covered by the permissions
5 that the users have granted to the application. 04:58:31

6 Q. And how did those permissions relate to
7 the use case of the app?

8 MR. SCHWING: Object to form.

9 THE DEPONENT: So a permission would gain
10 a particular piece of information or set of 04:58:51
11 information that an app could have access to, and
12 typically those permissions would be requested by
13 the developer based on the -- on the functionality
14 their app was trying to perform.

15 Q. (By Mr. Melamed) The permissions were 04:59:18
16 requested by the developer, correct?

17 A. The permissions were requested -- well --
18 when permissions were first introduced, developers
19 requested them from users. After the institution
20 of app review, an app was required to go through an 04:59:35
21 app review, then the developer would be required to
22 request those permissions from user -- from
23 Facebook, and if Facebook granted the permission,
24 then the app could request those permissions from
25 users. 04:59:53

HIGHLY CONFIDENTIAL

1 Q. I know you testified about this before. 04:59:54

2 I just want to make sure I have it in the right
3 place.

4 App review, the process of app review,
5 started on April 30th, 2014, correct? 05:00:02

6 A. That's correct.

7 Q. So prior to April 30th, 2014, permissions
8 were requested by an app -- I'm sorry -- by a
9 developer, and the request was made to -- directly
10 to a user; is that correct? 05:00:18

11 A. That's correct.

12 Q. Was -- did Facebook do anything prior to
13 April 30th, 2014, to check whether developers were
14 requesting permissions from users for data that
15 went beyond the developer's use case? 05:00:36

16 MR. SCHWING: Object to form. Outside
17 the scope.

18 THE DEPONENT: So one example here is
19 their publishing permissions. One of the
20 permissions that exists -- existed -- apologies -- 05:00:53
21 in the API is the ability for apps to publish
22 content back to Facebook on behalf of the user.

23 And the platform integrity team would
24 have looked at or did look at the information being
25 published by apps on behalf of the users and 05:01:15

Page 842

HIGHLY CONFIDENTIAL

1 whether or not -- attempt to determine whether or 05:01:22
2 not the information being shared back to Facebook
3 was being done in a way that was compliant with
4 Facebook's policies around sharing stories back to
5 Facebook. 05:01:40

6 Q. (By Mr. Melamed) Let me ask a more -- a
7 narrower version of the question I just asked. And
8 I'm attempting to eliminate with this question
9 sharing back from the developer or the app to
10 Facebook. 05:01:54

11 In terms of the permissions sought by a
12 developer for an app from a user before
13 April 30th, 2014, did Facebook review any of the
14 permissions to determine whether the information
15 the developer was asking for was within the app's 05:02:20
16 use case?

17 MR. SCHWING: Outside the scope. Object
18 to form.

19 THE DEPONENT: Again, I think the -- in
20 terms of there were operational processes in place, 05:02:36
21 as I understand it, to look at apps and the
22 permissions they were requesting from users.

23 The assessment of that would have been,
24 at that time, done by primarily the developer
25 operations and policy teams. 05:03:00

HIGHLY CONFIDENTIAL

1 Q. (By Mr. Melamed) What were the 05:03:03
2 operational processes in place at that time? And
3 by "that time," I mean prior to April 30th, 2014.

4 MR. SCHWING: Outside the scope of the
5 deposition. Object to form. 05:03:13

6 THE DEPONENT: I think the operation --
7 like Ally Hendrix is the best person to answer
8 questions around the operational processes in place
9 and the policies there.

10 The platform engineering teams would have 05:03:28
11 been involved in providing them with the
12 information to -- to inform those audits.

13 Q. (By Mr. Melamed) Just to be clear about
14 it, so I am clear about the testimony you are
15 giving. 05:03:43

16 You were identified as somebody who could
17 talk about the technical aspect related to platform
18 integrity team concerning how Facebook ensured
19 third parties' use of user data they acquired from
20 Facebook was limited to the use case; is that 05:03:56
21 right?

22 Do you understand that as well?

23 A. I understand. That's right.

24 MR. SCHWING: Subject to the -- Matt,
25 subject to the clarifications that we've indicated 05:04:08

Page 844

HIGHLY CONFIDENTIAL

1 in our correspondence. 05:04:11

2 But go ahead. Please go ahead and ask
3 your question.

4 Q. (By Mr. Melamed) Okay. So the follow-up
5 to that is is it accurate that there were no 05:04:16
6 technical aspects relating to the platform
7 integrity team concerning how Facebook ensured
8 third parties' use of user data they acquired from
9 Facebook was limited to the use case in the context
10 of permissions before April 30th, 2014? 05:04:35

11 MR. SCHWING: Object to form.

12 THE DEPONENT: My -- my goal here is to
13 give you examples of what was done, and in attempt
14 to do that, I spoke -- I've spoken to people
15 involved in this over -- over periods of time, and 05:05:00
16 I think I've given several examples of how the
17 platform integrity team operated and the things
18 they did. It's possible they did other things that
19 I am not aware of, that I was unable to uncover in
20 my preparation for today. 05:05:21

21 So I don't think I can rule out other
22 things were done. It's possible other things were
23 done that I'm -- I'm not aware of. My job -- my
24 job here is to do the best job I can giving you
25 examples of things that were -- that were done that 05:05:38

Page 845

HIGHLY CONFIDENTIAL

1 were relayed to me as part of my preparation for 05:05:40
2 today.

3 Q. (By Mr. Melamed) Let me restate the
4 question, then, based on that answer.

5 Are you aware of any technical aspects 05:05:50
6 relating to the platform integrity team concerning
7 how Facebook ensured third parties' use of user
8 data they acquired from Facebook was limited to the
9 use case in the context of permissions prior to
10 April 30th, 2014? 05:06:06

11 A. In the context of permissions
12 specifically and the technical aspects, I'm -- I'm
13 not aware of anything more than the examples I've
14 already given, which -- which were in place at --
15 to prevent and detect misuse of information. 05:06:30

16 Q. What were the examples you've already
17 given concerning permissions that were in place to
18 prevent and detect misuse of information prior to
19 April 30th, 2014?

20 MR. SCHWING: Object to form. 05:06:55

21 THE DEPONENT: We talked about the
22 existence of the permissions and then the
23 institution of -- of app review as examples. So
24 that's what I'm referring to.

25 Q. (By Mr. Melamed) And the existence of 05:07:13

HIGHLY CONFIDENTIAL

1 app review commenced on April 30th, 2014, right? 05:07:17

2 A. App review commenced on April 30th, 2014,
3 yes.

4 Q. And so in the context of this line of
5 inquiry of topic 2d, the technical aspect related 05:07:41

6 to platform integrity team concerning how Facebook
7 ensured third parties use of user data they
8 acquired from Facebook was limited to use case, we
9 just talked about a series of technical -- of
10 technical aspects that Facebook used, correct? 05:07:59

11 I'm not trying -- this isn't a "gotcha."
12 I'm just trying to go back over what we talked
13 about a little bit.

14 A. Yes, we talked through a number of
15 techniques that -- that Facebook used over time to 05:08:10
16 assess how developers were using information.

17 Q. And for some of them, you were unable to
18 state the specific -- the specific time period when
19 those technical aspects were in place, right?

20 A. I've given -- I've given some dates as 05:08:32
21 much as I can, so I feel I've given the best job --
22 given some reasonable clarity on that.

23 Q. And then for some of them you were unable
24 to talk about the specific way the technology
25 worked to ensure that third parties' use of user 05:08:51

Page 847

HIGHLY CONFIDENTIAL

1 data acquired from Facebook was limited to use 05:08:58

2 case; is that right?

3 MR. SCHWING: Object to form.

4 THE DEPONENT: To be able to give a

5 general overview of -- of several systems that -- 05:09:10

6 that have been in place. So, yes.

7 Q. (By Mr. Melamed) I just want to read for

8 the record the representation that was made by

9 counsel before talking to you about this subject.

10 MR. MELAMED: And I'm not doing this to 05:09:29

11 start a fight, Austin. You know, obviously you can

12 respond.

13 But the paragraph that was in the letter

14 written on June 3rd specifically regarding your

15 preparation to testify was with respect to topic 05:09:41

16 2d, which relates to "how Facebook ensured third

17 parties' use of such data or information was

18 limited to the use case." For avoidance of doubt,

19 Facebook again writes that "while Ally Hendrix is

20 prepared to testify on most aspects of topic 2d, 05:09:59

21 there is a technical aspect relating to the

22 platform integrity team that Mr. Cross is prepared

23 to testify about. We are uncertain why you are

24 pushing back on this issue. As mentioned above,

25 Facebook is simply using its best efforts to 05:10:11

Page 848

HIGHLY CONFIDENTIAL

1 identify the best possible witnesses to testify on 05:10:14
2 plaintiffs' topics."

3 So I just want to state for the record
4 that that's why we were pushing on these topics.
5 That's why I've asked the follow-ups that I asked. 05:10:23
6 And we will seek additional testimony regarding
7 these topics so that we get the answers to those
8 questions.

9 MR. SCHWING: And, Matt, I will not argue
10 with you, and I'm happy to address that, you know, 05:10:39
11 at -- at an appropriate time. We've indicated in
12 correspondence that Mr. Cross will be prepared to
13 discuss -- and I'm quoting -- "generally the steps
14 the platform integrity team undertook to detect
15 misuse." You're, of course, free to follow up with 05:10:58
16 further discovery.

17 I appreciate you raising your concerns.
18 I'm happy to speak with you about it and -- and --
19 and work through the issues.

20 MR. MELAMED: Thank you. I just -- I 05:11:12
21 appreciate that. I just want to note that the word
22 "generally" is not in the -- uttered in the
23 reference.

24 SPECIAL MASTER GARRIE: This is Special
25 Master Garrie. Both parties have been heard. 05:11:21

Page 849

HIGHLY CONFIDENTIAL

1 Let's move forward. 05:11:23

2 MR. SCHWING: Thank you, Special Master.

3 I appreciate it.

4 MR. MELAMED: Thank you.

5 Q. (By Mr. Melamed) So I'm going to return 05:11:29

6 to the ways that Facebook made user data available

7 to third parties. We talked a little bit about

8 Graph API and you -- you talked a little about rest

9 API. I just want go all the ways and make sure I

10 understand the time periods and the differences in 05:11:44

11 the way information was made available.

12 So I want to know as a general matter,

13 starting what are the ways that third parties --

14 again, excepting advertisers and data brokers --

15 could access user data from Facebook from 2007 to 05:12:05

16 the present?

17 A. Sure. Happy -- happy to go into that.

18 So 2007, my understanding is there was an

19 API called the "rest API," which allowed developers

20 to query Facebook's database for user information. 05:12:30

21 And that was the primary way in which developers

22 queried the Facebook -- queried Facebook for user

23 data up until launch of the Graph API in

24 April 2010.

25 Q. And for the rest -- I'm sorry. I didn't 05:12:53

Page 850

HIGHLY CONFIDENTIAL

1 mean to interrupt you. I want to ask some 05:12:55
2 follow-ups about rest API while we're here.
3 Were those queries submitted in FQL?
4 A. No. I was going to go on to FQL.
5 FQL is another mechanism by which 05:13:13
6 developers can query or could query Facebook for
7 user data. At a technical level, you would make an
8 X -- a rest API call to the FQL method and specify
9 your FQL statement in your API request.
10 Similarly, when the Graph API was 05:13:38
11 launched, you would be able to access the FQL
12 method on the Graph API and specify your FQL query,
13 and then in both cases, a response to your FQL
14 query would be returned.
15 Q. Did Facebook -- I'm sorry -- third 05:14:03
16 parties, using FQL queries, could batch multiple
17 queries into a single call, correct?
18 A. I -- I think yes. Facebook -- the -- the
19 FQL allowed you to request -- well, more
20 specifically, I -- I'm certain that Facebook -- FQL 05:14:25
21 allowed you to ask for multiple pieces of
22 information in your API requests. I can't say for
23 certain whether or not you could submit multiple
24 FQL requests, so I'm not sure about that detail.
25 But you could certainly ask for multiple pieces of 05:14:46

Page 851

HIGHLY CONFIDENTIAL

1 information as part of the FQL query. 05:14:49

2 Q. Was the same true for rest API?

3 A. When you say "the same," do you mean --

4 refer -- sorry. Can you just clarify what you mean

5 by "the same true." 05:15:06

6 Q. Sure.

7 Would third parties ask for multiple

8 pieces of information in the same call to the rest

9 API?

10 A. No. My understanding is that the rest 05:15:26

11 API, you would call one -- you would make one API

12 call at a time.

13 Q. And you said rest API was used between

14 2007 and 2010, correct?

15 A. My understanding is it was instituted 05:15:42

16 in -- in 2007. The Graph API came to -- was

17 announced in April of 2010 and was designed to

18 replace it over time.

19 Q. Do you know when third parties were no

20 longer able to make calls via a rest API? 05:15:59

21 A. The deprecation of the rest API was

22 announced, I think, in v2.1 or v2.3. The precise

23 date on which it was later published and

24 deprecated, I -- I don't have in my head or my

25 notes today. I -- I can access that for you. 05:16:25

Page 852

HIGHLY CONFIDENTIAL

1 Q. When you're talking about -- when you 05:16:30
2 mentioned the deprecation of rest API being
3 announced, what you believe it was either 2.1 or
4 2.3, are you referring to Graph v2.1 or Graph v2.3?

5 A. Sorry. Yes, that's true. The 05:16:47
6 announcement of the deprecation of the rest API and
7 FQL was announced at the same time as one of those
8 API versions. Again, I think that's -- that's
9 right, but we can follow up with the specific
10 dates. 05:17:06

11 Q. And then once the deprecating of rest API
12 and FQL was announced, is it accurate that certain
13 third parties were still able to make calls on user
14 data via those methodologies for a period of time?

15 MR. SCHWING: Object to form. 05:17:26

16 THE DEPONENT: Yes, the -- the FQL and
17 the rest API were then later removed from the
18 public APIs of this area. Some apps retained
19 access to those mechanisms for -- for a longer
20 period of time because those apps were -- were hard 05:17:48
21 or hadn't been yet updated to call a Graph API.

22 Q. (By Mr. Melamed) Do you know when the
23 last apps were no longer accessing FQL mechanism
24 for calling user data?

25 A. I -- I discussed that -- I discussed that 05:18:18

HIGHLY CONFIDENTIAL

1 date with -- with folks. I don't have the precise 05:18:19
2 date to hand, but that's something we could -- we
3 could follow up on if needed.

4 Q. I just want to understand your answer,
5 though. You asked that question of people you 05:18:32
6 spoke in preparation for today and were not able to
7 determine in those conversations the exact date?

8 A. No. My understanding is that the exact
9 date is determinable. I don't have it in my head
10 or in my notes right now. 05:18:49

11 Q. And is the -- is your answer the same for
12 rest API?

13 A. Yes, my understanding is those -- those
14 two were treated broadly together as legacy
15 mechanisms for accessing information. 05:19:10

16 Q. Do you know how many apps called user
17 information via the FQL methodology, just as a
18 rough number?

19 A. Can you help me understand -- over what
20 period of time. In the past? I guess -- I'm 05:19:32
21 sorry. I don't understand.

22 Q. I'll restate the question.

23 During the period of time apps could
24 query user data using FQL, do you know how many
25 apps did so? 05:19:49

HIGHLY CONFIDENTIAL

1 A. FQL was one of the more advanced ways to 05:19:56
2 access user data, and so it was my -- my
3 understanding is it was always the minority of
4 active apps on the platform were using FQL.

5 Q. And is it accurate to say that those apps 05:20:16
6 were the more advanced apps that were using
7 platform at that time?

8 MR. SCHWING: Object to form.

9 THE DEPONENT: It's not accurate to say
10 that they were necessarily the most advanced apps. 05:20:28
11 FQL was -- was just a way developers could choose
12 at the time to -- to query Facebook for
13 information, and some chose to make FQL queries and
14 others would have chosen to use the predefined
15 methods that the API provided. And typically FQL 05:20:50
16 existed to allow developers to -- to query
17 different --

18 Let me put it the other way. Sorry.

19 Standard API methods existed to cover the
20 most common use cases. So it was more about the 05:21:06
21 technical abilities of the developer rather than
22 the app being, you know, more advanced in terms of
23 such an answer.

24 Q. (By Mr. Melamed) Does Facebook have a
25 record of which developers queried for user data 05:21:23

HIGHLY CONFIDENTIAL

1 using FQL? 05:21:28

2 A. My understanding is that the method table
3 contained information about apps querying FQL on
4 the Graph API.

5 Q. Was Facebook able to determine which 05:21:57
6 types of information were requested by each FQL
7 call?

8 MR. SCHWING: Object to form.

9 THE DEPONENT: In order to process the
10 query, Facebook would have had a mechanism for 05:22:14
11 evaluating the query supplied by the developer.

12 Q. (By Mr. Melamed) Did Facebook record
13 each type of information requested in FQL calls?
14 Is there a log of each type -- was there a log of
15 each type of information requested by FQL calls? 05:22:38

16 MR. SCHWING: Compound. Vague.

17 THE DEPONENT: The -- the fact that --
18 I'm aware that the fact that an API -- that an app
19 made an FQL call would have been logged and
20 there -- what I'm saying is that in the past there 05:23:08
21 was a way to unpack which the -- the FQL calls
22 being made. But I'm -- I'm uncertain as to whether
23 or not those were -- were logged.

24 Q. (By Mr. Melamed) I just want to restate
25 that to make sure I understand it. And please 05:23:32

Page 856

HIGHLY CONFIDENTIAL

1 correct me if I'm getting this wrong. 05:23:35

2 So we're starting from the premise that a
3 single FQL call could pass for multiple types of
4 information, right?

5 A. An FQL call allowed a developer to 05:23:50
6 request different fields on an object and join
7 those together.

8 Q. And that's in a single call, correct?

9 A. Yes. An FQL call would allow a developer
10 to -- to request multiple types of information in a 05:24:06
11 single call.

12 Q. And Facebook obviously understood enough
13 about the individual types of information in
14 requested -- in a single call to be able to return
15 those individual types of information, correct? 05:24:20

16 A. Yes. Facebook had a system for accepting
17 FQL inquiries, evaluating them, and then providing
18 the appropriate API response.

19 Q. And I think you answered this, but I'm
20 going to ask it as a question again just to make 05:24:38
21 sure I understand correctly.

22 Did Facebook log the individual types of
23 information it provided in response to FQL queries?

24 MR. SCHWING: Object to form.

25 THE DEPONENT: My understanding is that 05:24:59

Page 857

HIGHLY CONFIDENTIAL

1 Facebook did not log -- similar to the Graph API, 05:25:00
2 did not log responses sent back to developers in
3 response to -- to their API queries.

4 Q. (By Mr. Melamed) Did Facebook log the
5 individual types of information requested in a 05:25:14
6 single FQL query?

7 A. My understanding is that it's likely that
8 the FQL query was logged as a -- as -- as a string.
9 The retention of that information is -- is -- is,
10 you know, not known to me, and -- but from that, it 05:25:41
11 would have been possible to understand the
12 information that the developer was requesting.

13 Q. You do not know whether Facebook, in
14 fact, logged each type of information requested in
15 FQL call? 05:26:18

16 MR. SCHWING: Object to form.

17 THE DEPONENT: The -- my answer is -- my
18 understanding is Facebook had logs of some FQL
19 queries that were being made, and from those
20 queries, if you had the information, you could 05:26:39
21 understand what the developer was asking for.

22 Q. (By Mr. Melamed) Do you know whether
23 Facebook had logs that broke out each type of
24 information requested in FQL queries?

25 MR. SCHWING: Objection. Vague. 05:26:59

HIGHLY CONFIDENTIAL

1 THE DEPONENT: I've spoken to people, 05:27:07
2 again, involved in API logging over time, and the
3 type of information exposed by FQL, as I -- as I
4 say, is -- is determinable from the query that is
5 being asked by the developer. In order to specify 05:27:25
6 an FQL query, the developer has to be very specific
7 about the information they want in that -- in that
8 API call. So a log of the FQL query would
9 determine the information that the developer was
10 asking for. 05:27:46

11 Q. (By Mr. Melamed) Does Facebook have a
12 log of the FQL queries that were made for users'
13 data?

14 MR. SCHWING: Asked and answered.

15 THE DEPONENT: As I say, I -- I 05:28:03
16 understand that FQL queries were logged in the
17 past. Whether or not Facebook has access -- has
18 those logs today and has access to that
19 information, I -- I can't say as I sit here today,
20 I'm afraid. 05:28:19

21 Q. (By Mr. Melamed) Does Facebook have a
22 log of the user information that was requested via
23 the rest API?

24 A. Are you asking whether or not Facebook
25 has -- has that today? 05:28:41

HIGHLY CONFIDENTIAL

1 Q. Yes. 05:28:43

2 A. Once again, that information would have
3 been logged in the past, but you're asking a
4 question about Facebook's data retention policies
5 from -- from a set of data that -- from several 05:28:58
6 years ago. I -- I can't say for certain whether or
7 not Facebook has that data today.

8 Q. And just to be clear, I'm not asking
9 about the retention policies, but I understand
10 there's an overlap in these questions. I'm asking 05:29:13
11 about the -- one of the topics on which you've been
12 designated is how Facebook tracked information,
13 right. Information was provided to third parties.
14 And so I think this falls within that topic.

15 I understand your -- I understand your 05:29:30
16 answer. I'm just trying to be clear about where
17 these questions are coming from.

18 Do you know whether Facebook had at any
19 time the information about which users' data was
20 accessed via FQL queries? 05:29:55

21 MR. SCHWING: Vague.

22 THE DEPONENT: My understanding is that
23 Facebook did not log API responses and -- which is
24 what would have been required to answer that
25 question. 05:30:21

Page 860

HIGHLY CONFIDENTIAL

1 Q. (By Mr. Melamed) Do you know whether 05:30:21
2 Facebook at any time had information on which
3 users' data was requested via FQL queries?

4 MR. SCHWING: Asked and answered.

5 I'm sorry, Matt. I don't want to 05:30:38
6 interrupt you. You already asked about FQL. Do
7 you mean FQL or do you mean rest?

8 MR. MELAMED: I mean FQL.

9 MR. SCHWING: Sorry. Go ahead.

10 THE DEPONENT: I -- he -- I'm going to 05:31:06
11 try to give you the best answer I can for how FQL
12 worked. It's been a long time since I've used it
13 myself.

14 No. Generally my understanding of
15 Facebook's logging systems at the time is that they 05:31:25
16 log the API calls and app made and not necessarily
17 which user the API call was made on behalf of.
18 It's -- it's possible the -- that most logging
19 systems captured some of that information, but that
20 would require me to understand the detail of a -- 05:31:57
21 of a logging table from several years ago.

22 So I -- I'm not sure I can completely
23 answer that question, I'm afraid.

24 Q. (By Mr. Melamed) Is there a point at
25 which Facebook did log the identity of individual 05:32:15

HIGHLY CONFIDENTIAL

1 users whose information was requested by a third 05:32:25
2 party?

3 MR. SCHWING: Objection. Vague.

4 THE DEPONENT: I can't for certain,
5 but -- but my understanding is that the API Hits 05:32:50
6 table -- API Hits tables may have included the user
7 ID of the person who the app was making a request
8 on behalf of.

9 Q. (By Mr. Melamed) That's the method
10 table, speaking -- "colloquially" is the wrong 05:33:12
11 word. But are you describing the method table?

12 A. No. I'm describing the -- the tables
13 that -- that were used to create the method table
14 in which we have logged API hits, individual API
15 hits by -- by an app. 05:33:35

16 Q. Do you know what the names of those
17 tables are, the specific names?

18 A. There are two tables I can -- I can
19 recall, API hits www and API hits mobile.

20 Q. Are you aware of information -- sorry. 05:34:01
21 Let me withdraw that and restate it.

22 Are you aware of any other tables or
23 records within Facebook's possession that identify
24 individual users whose data has been requested by a
25 third party? 05:34:20

HIGHLY CONFIDENTIAL

1 MR. SCHWING: Objection. Vague. 05:34:25

2 THE DEPONENT: My understanding is a
3 previous version of those tables called API hits.
4 They later were split into -- into two tables. But
5 that's the system I'm aware of that logged API 05:34:45
6 hits.

7 Q. (By Mr. Melamed) Are you aware of any
8 other system that identified -- that identified API
9 calls where those calls can be tracked to an
10 individual user? 05:35:06

11 A. When you say "tracked" -- can I just
12 clarify what you mean by "tracked to an individual
13 user."

14 Q. Sure.
15 Let me describe what I'm asking for in 05:35:17
16 term of a table, right. Would there be any table
17 that said X app, meaning this API call on this user
18 ID's information or this replacement user ID's
19 information or some other identifier describing
20 identifying an individual whose -- whose 05:35:45
21 information that a call was being made against.

22 Does that help clarify?

23 MR. SCHWING: Object to form.

24 THE DEPONENT: The -- my -- my
25 understanding of the way that Facebook's logging 05:36:00

Page 863

HIGHLY CONFIDENTIAL

1 worked is that it would have logged the access 05:36:04
2 token of the user ID making the API request, so in
3 this case, it's the authenticated user, and them
4 making an API request, rather than the -- the
5 subject necessarily of the API call. 05:36:29

6 So the example here would be the
7 system would -- again, as I understand it from
8 talking to the people involved -- when you had
9 logged in to an app and the app was using your
10 access token to make API calls and the logs would 05:36:44
11 identify your access token was being used, and
12 therefore your user ID. Not necessarily the -- the
13 user ID of the subject of the API request.

14 Q. (By Mr. Melamed) So if I had logged in
15 to an app and the app was permitted to call my 05:37:17
16 friend's religious and political preferences, and
17 the app made a call on that data for my friends, am
18 I understanding correctly that the records that
19 they Facebook kept would identify me as having
20 requested that information via my access token, but 05:37:49
21 not the individuals whose data was returned as a
22 result of that request? Or I'm sorry -- who has
23 request access -- who --

24 Let me restate this whole thing. I'm
25 going to reread most of it. I'm sorry. I 05:38:05

HIGHLY CONFIDENTIAL

1 understand that Facebook didn't have the records of 05:38:07
2 whose data was returned.

3 So starting again. If I had logged in to
4 an app and the app was permitted to call my
5 friend's religious and political preferences and 05:38:17
6 the app made a call on that data for my friends, do
7 I understand correctly that the records Facebook
8 kept would identify me as having requested that
9 information, but not the friends whose information
10 was requested? 05:38:37

11 MR. SCHWING: Object to form.

12 THE DEPONENT: My understanding of the
13 API Hits table and its successor tables is that it
14 would record the user ID of the user who was making
15 the request and -- and not necessarily the user ID 05:38:56
16 of the subject of the request.

17 Q. (By Mr. Melamed) Are you aware of any
18 tables within Facebook during the entirety of the
19 relevant time period that recorded the subject of
20 API requests? 05:39:18

21 MR. SCHWING: Object to form.

22 Q. (By Mr. Melamed) By "subject," I mean
23 the user -- the user's data who was the subject of
24 the API request?

25 MR. SCHWING: Object to form. 05:39:32

HIGHLY CONFIDENTIAL

1 THE DEPONENT: The entirety of the -- the 05:39:38
2 time period, the -- the system I'm -- I'm aware of
3 that I -- as I understand it, logs that information
4 is -- is the -- the -- Did access system, which
5 exists today. 05:40:00

6 Again, I -- I've understood that system
7 as best I can, and that's -- that's the best --
8 that's my -- from talking to the people involved in
9 it, that's my understanding of how that works to
10 the best of my ability. 05:40:15

11 Q. (By Mr. Melamed) Prior to the
12 implementation of the Did access system, did
13 Facebook maintain any logs of the individuals whose
14 data was the subject of a request?

15 A. I am not aware of -- of any system 05:40:40
16 that -- that -- that recorded that information.
17 Again, I -- I've spoken to -- to several people
18 about this, and it's possible there are systems,
19 again, that -- that I have been unable to ascertain
20 their existence of that did that. But my 05:41:00
21 understanding is that the API hits logging system
22 recorded the IDs of the users making the API
23 requests.

24
25 ///// 05:41:14

HIGHLY CONFIDENTIAL

1 (Exhibit 425 was marked for 05:41:14
2 identification by the court reporter and is
3 attached hereto.)

4 MR. MELAMED: Just introduced what's been
5 marked as Exhibit 325 -- I'm sorry. 425. My 05:41:41
6 mistake.

7 Q. (By Mr. Melamed) And just for the
8 record, Exhibit 425 was provided to us, to
9 plaintiffs, by counsel for Facebook. I don't
10 anticipate that you've seen this before, Mr. Cross. 05:41:55
11 It's possible you have, but I just want to ask you
12 a couple questions about it.

13 And it's probably going to be easiest if
14 I share my screen. It's a very large -- a very
15 lengthy Excel spreadsheet. You can go ahead and 05:42:13
16 look at it. I don't mean to cut you off from
17 familiarizing yourself from it.

18 THE DEPONENT: Sorry. Where would I
19 access this? Are you just going to share your
20 screen or -- 05:42:33

21 MR. MELAMED: Okay. I will share my
22 screen. But it should be in marked exhibits on --
23 in Exhibit Share for deposition of Simon Cross,
24 Volume 4.

25 Austin, are you able to see it? 05:42:46

Page 867

HIGHLY CONFIDENTIAL

1 MR. SCHWING: I can. 05:42:51

2 Simon, do you have the Egnyte page up?

3 THE DEPONENT: Yes, I do. Exhibit 3 --

4 MR. SCHWING: The top -- you should see

5 things that say Simon Cross. It would be the top 05:43:02

6 one, I believe.

7 THE DEPONENT: Yeah, that's it.

8 MR. MELAMED: Yes. As I mentioned, this

9 is really, really long. I'm going to direct you

10 very specifically to a few lines. I just want to 05:43:13

11 understand if you're able to provide answers. If

12 you're not, that's fine.

13 So I'm going to scroll down to line

14 36,608.

15 (Discussion off the stenographic record.) 05:43:28

16 MR. SCHWING: Matt, if you're trying to

17 demonstrate your -- your diligence by saying you've

18 reviewed 36,000 rows of this, I am impressed.

19 MR. MELAMED: I appreciate that you think

20 that I reviewed 36,000 rows of this table that was 05:43:56

21 provided, I think, last night.

22 MS. WEAVER: I'll take credit for it.

23 SPECIAL MASTER GARRIE: Hey, Counsel.

24 Can I ask a question?

25 What are the column values for A? 05:44:23

Page 868

HIGHLY CONFIDENTIAL

1 MR. MELAMED: I will tell you -- I will 05:44:31
2 open it locally and tell you, if that's okay, and
3 I'll state for the record once I get down.

4 Is that okay?

5 SPECIAL MASTER GARRIE: Yeah. If you 05:44:37
6 want to get to the bottom, just hit control page
7 down or control N.

8 MR. MELAMED: Thank you very much. That
9 was -- and the highlight -- and then I will tell --
10 tell you now for the record, Special Master Garrie, 05:45:01
11 column A is table_name. Column B is column_name.
12 And my understanding is that these reflect the
13 column names for a list of Hive tables for which
14 Facebook is proposing to search and produce data
15 from a statistically significant sample. 05:45:34

16 I just want to --

17 Q. (By Mr. Melamed) Do you see these five
18 columns that are highlighted on my screen,
19 Mr. Cross?

20 A. I do. 05:45:44

21 Q. Five entries. I'm sorry.

22 And you see that the first one 36,608 is
23 assistant_owner_id_record_four_did_access_inc_
24 archive.

25 MR. MELAMED: Apologies, Rebecca. 05:46:07

Page 869

HIGHLY CONFIDENTIAL

1 THE DEPONENT: I see that, yes. 05:46:10

2 Q. (By Mr. Melamed) Okay. And that that is
3 actually each of these five cells, column A, rows
4 36,008 through -612 reflects the same descriptor
5 for the table name. 05:46:25

6 Do you see that?

7 A. I do see that.

8 Q. Do you know if these reflect the Did
9 table that you testified about before?

10 MR. SCHWING: I'm just going to state for 05:46:40
11 the record that we didn't receive these in advance
12 of the deposition. I understand you represented
13 that this was provided last night, Matt, but just
14 to be clear, the witness has not had a chance to
15 look through this. 05:46:51

16 MR. MELAMED: Let me -- you're right,
17 Austin. Let me correct the record. This was not
18 received last night. It was received Thursday.
19 That was my mistaken.

20 I am only asking about this because of 05:46:58
21 Mr. Cross's testimony before about the Did table.
22 It's just -- you know, and I understand that
23 Mr. Cross likely has not reviewed this, but I can
24 confirm that.

25 So I'll ask that, but I understand -- I 05:47:12

Page 870

HIGHLY CONFIDENTIAL

1 understand the point you're making, Mr. Schwing. 05:47:16

2 Q. (By Mr. Melamed) Mr. Cross, have you
3 reviewed this table before?

4 A. I have not reviewed this table before.

5 Q. Are you -- do you know whether the rows 05:47:26
6 36,608 through -612 are related to the Did table
7 you described in your testimony today?

8 MR. SCHWING: It's outside the scope of
9 the deposition. Object to form.

10 THE DEPONENT: I cannot ascertain if 05:47:48
11 these relate to the -- the Can and Did tables I've
12 previously talked about. I cannot ascertain that
13 from this.

14 Q. (By Mr. Melamed) Do you know what the
15 information in column B for these five tables 05:48:07
16 reflects?

17 Do you have any understanding of what
18 "DS" means?

19 MR. SCHWING: Same objections.

20 THE DEPONENT: Sorry. I -- "DS" 05:48:18
21 typically means the day on which -- on which this
22 logging was done. A Hive data warehouse partitions
23 by date, so "DS" refers to a day.

24 Q. (By Mr. Schwing) And do you have any
25 understanding of what event_time means in the 05:48:35

Page 871

HIGHLY CONFIDENTIAL

1 context of Hive tables? 05:48:39

2 MR. SCHWING: Same objections.

3 THE DEPONENT: DS is a standard

4 partition. Event_time seems to be a -- my

5 understanding is something that is specific to the 05:48:54

6 table itself and therefore could mean different

7 things in different contexts.

8 Q. (By Mr. Melamed) What about owner_SID?

9 MR. SCHWING: Same objections.

10 THE DEPONENT: Again, owner SID to me is 05:49:14

11 a table-specific property, so it could mean

12 something different in different tables.

13 Q. (By Mr. Melamed) What about

14 proxy_user_SID?

15 MR. SCHWING: Same objections. I'll have 05:49:29

16 a same objection with respect to TS if you get to

17 that too.

18 THE DEPONENT: Similarly, that's a

19 table-specific property. I'd be speculating what

20 it means. I'd need to review much more information 05:49:43

21 to give you an answer to that.

22 Q. (By Mr. Melamed) And what about TS?

23 A. My understanding is TS is a way of

24 partitioning tables within a day, so within a

25 particular time window. Again, my understanding is 05:50:02

Page 872

HIGHLY CONFIDENTIAL

1 that's in favorable by table. 05:50:07

2 MR. MELAMED: Thank you. You can put
3 that exhibit away if you have it open.

4 Q. (By Mr. Melamed) We were talking before
5 we returned to the Did table for a minute about the 05:50:34
6 manner by which third parties could access user
7 data, and we talked about the rest API and the FQL
8 API, and we've talked periodically about
9 Open Graph, correct?

10 A. Well, we talked about the Graph API. We 05:50:49
11 haven't talked about Open Graph.

12 Q. Thank you for the correction. We talked
13 about the Graph API.

14 During what period of time did third
15 parties access user data via Facebook login? 05:50:59

16 MR. SCHWING: Object to form.

17 THE DEPONENT: So Facebook login is a --
18 is a name that refers to the dialogue by which
19 users grant apps access to information. It renders
20 platform permissions and emits access tokens. But 05:51:31

21 typically the apps then take the access token and
22 make calls against the Graph API or previously the
23 rest API in order to actually access information.

24 Q. (By Mr. Melamed) So is it right to
25 understand Facebook login as providing third 05:51:50

Page 873

HIGHLY CONFIDENTIAL

1 parties a user's access token? It is one way that 05:51:52

2 a third party can get a user's access token?

3 A. Facebook login is -- is -- is a -- is the
4 primary way by which apps get an access token for a
5 user. 05:52:10

6 Q. Is there a time period during which
7 Facebook login has been the primary way that apps
8 get access tokens for users?

9 A. The equivalent of the login dialogue has
10 been in existence throughout platform, as I 05:52:32
11 understand it, from 2007. It's now branded and
12 called Facebook login in -- in -- in materials for
13 developers, but a -- a product that does that job
14 has been part of the Facebook open platform since
15 the beginning. 05:52:54

16 Q. Did it go by any other names before it
17 became branded as "Facebook login"?

18 A. The previous name for the login dialogue
19 was -- "Facebook Connect" is commonly a term used
20 to refer to the Facebook login dialogue, although 05:53:13
21 Facebook Connect refers to a -- a broader program
22 of work.

23 Q. But Facebook Connect includes Facebook
24 login but is not limited to Facebook login?

25 A. Facebook Connect was -- was a term 05:53:38

HIGHLY CONFIDENTIAL

1 associated with allowing apps to integrate Facebook 05:53:45
2 into third-party -- sorry -- third parties to
3 integrate Facebook into their mobile apps and
4 websites, and the login dialogue was the mechanism
5 by which users granted permission for that 05:54:06
6 information to be shared.

7 Q. And so Facebook login existed from the
8 inception of platform through the present; is that
9 right?

10 A. My understanding of what today is known 05:54:22
11 as "Facebook login," an equivalent product has
12 existed since the beginning of -- of platform in
13 the earlier days. It was called "the login
14 dialogue" or the -- the "authentication screen."
15 It was known by -- by different names at different 05:54:44
16 times. But generally an equivalent to Facebook
17 login has existed since the beginning.

18 Q. What other ways do third parties access
19 user tokens?

20 A. Login dialogue is by far the primary way. 05:55:06
21 One other mechanism is something called
22 "auth.login," which is a way for users to enter
23 their information -- their login information into a
24 third-party product, and as a result the product
25 then gets access to some of their Facebook 05:55:33

HIGHLY CONFIDENTIAL

1 information. 05:55:38

2 Q. And is auth, A-U-T-H, as in short for
3 "authorization" or "authorize"?

4 A. Auth.login.

5 Q. Are there particular circumstances in 05:55:49
6 which auth.login is used?

7 A. Auth.login was typically used in the case
8 of devices or circumstances where a developer was
9 unable to render Facebook login dialogue.

10 Q. Will you help me understand when a 05:56:16
11 developer -- the circumstance where a developer
12 couldn't render Facebook login dialogue?

13 A. So an example would be where a developer
14 is building a Facebook experience on a smart TV or
15 set-top box that didn't have the ability to render 05:56:36
16 HTML. As a result, they might use auth.login in
17 order to provide people a way to access Facebook
18 information or a Facebook experience on that
19 device.

20 Q. So when -- when a third party requests a 05:57:14
21 type of user information from Facebook, can you
22 explain the data flow. How does -- it goes from a
23 request to Facebook into determining whether there
24 is permission or not, et cetera, to determining
25 whether to return data. And I'm not phrasing this 05:57:37

Page 876

HIGHLY CONFIDENTIAL

1 elegantly, but I'm just trying to understand the 05:57:40
2 process of the data flow and then whether that has
3 changed over time.

4 If you want me to restate the question,
5 I'm happy to do so and break it down. But I'm 05:57:49
6 looking for that kind of information.

7 MR. SCHWING: I apologize, Matt. The
8 question is vague. But if the witness understands
9 the question, please go ahead and give the --

10 (Discussion off the stenographic record.) 05:58:09

11 THE DEPONENT: I -- I can give a
12 high-level overview if that would be helpful and
13 then maybe this -- you know, that would -- that
14 would help.

15 So typically a -- the first thing that 05:58:26
16 happens is an app asks the user for permission to
17 access information, and to do that, they'll display
18 the login dialogue.

19 At that time, the developer requests or
20 specifies the permissions they would like the user 05:58:50
21 to agree to, and the login dialogue -- the code
22 behind the login dialogue will determine whether or
23 not those permissions are, indeed, requestable from
24 this particular user. There's a number of factors
25 that go into that determination. 05:59:10

Page 877

HIGHLY CONFIDENTIAL

1 Then the user grants some or all of those 05:59:12
2 permissions, and the -- they have various options
3 there. At that point, those permissions are stored
4 between the user and the app, and if the app does
5 not already have one, they are given an access 05:59:36
6 token to access the API of behalf of that security
7 used.

8 Then the app uses that access token to
9 make API requests to particular API methods. The
10 API, the Graph API or the API they're calling, will 05:59:59
11 then evaluate that request and determine what
12 information, if any, can be emitted.

13 A number of things, many things, go into
14 that termination. One of them is does the user --
15 has the user granted the appropriate permission or 06:00:24
16 permissions required to access this data. A number
17 of other checks are made as well. And then
18 Facebook's internal privacy rules are evaluated,
19 and ultimately the API returns a request or returns
20 a response that satisfies those requests. 06:00:49

21 That's a -- a high-level typical overview
22 of how these systems work.

23 Q. (By Mr. Melamed) I'd like to ask you
24 some follow-ups. If you -- you know, to the extent
25 you don't know, you don't know. 06:01:03

HIGHLY CONFIDENTIAL

1 But -- we talked about this before. I 06:01:06
2 just want to make sure I understand it correctly.

3 The first step of this is the app asking
4 for user permission, correct? Or an early step, if
5 not the first. So the app asks the user, can I 06:01:18
6 access this type of information, right?

7 MR. SCHWING: Objection. Vague.

8 THE DEPONENT: And I'm describing here
9 a -- a typical way that this would work. And the
10 first step, again, typically, is that the user 06:01:37
11 takes an action in the app which results in the app
12 request showing the login dialogue to the user or
13 redirecting the user to the login dialogue.

14 But typically the first thing that
15 happens is the user takes an action. 06:01:59

16 Q. (By Mr. Melamed) Was there any point in
17 time going back to 2007 where the app did not have
18 to ask users for permission for different types of
19 information the app could request?

20 MR. SCHWING: Object to form. 06:02:18

21 THE DEPONENT: My understanding is that
22 in certain very narrow scenarios, for example,
23 where a third party had built a Facebook
24 replacement or a Facebook app for their device or
25 platform, then the user experience would be -- 06:02:46

Page 879

HIGHLY CONFIDENTIAL

1 would be different. 06:02:51

2 Q. (By Mr. Melamed) So I understand that
3 answer to say that where a third party built a
4 Facebook app on its device, that app did not have
5 to ask a user's permission to get the information, 06:03:06
6 specific types of information, from Facebook?

7 MR. SCHWING: Object to form.

8 THE DEPONENT: Yeah. I'm not sure
9 that's -- that's quite right.

10 In the case where Facebook partnered 06:03:28
11 with, for example, a device manufacturer to build a
12 Facebook experience on that device, then the app
13 wouldn't necessarily have to render the Facebook
14 login dialogue as -- as a -- as a standard platform
15 app would do. 06:03:50

16 However, the user experience, you know,
17 would -- would have requested -- you know, would
18 have explained -- would have explained to the user
19 what was about to happen.

20 Q. (By Mr. Melamed) How would the user 06:04:07
21 experience have explained to the user what was
22 about to happen?

23 MR. SCHWING: Object to form. Outside
24 the scope.

25 THE DEPONENT: So the precise way in 06:04:26

Page 880

HIGHLY CONFIDENTIAL

1 which each of these Facebook device integrations 06:04:27
2 was designed would have -- would have -- would have
3 differed. And I -- I -- I don't have the details
4 on all of them.

5 But the -- the goal was, as close as 06:04:42
6 possible, that this is a Facebook app. You have a
7 device, there's a Facebook app on it, and it should
8 look and feel just like logging in to -- to
9 Facebook.

10 And there's appropriate disclosures or 06:05:00
11 appropriate disclosures around that, as I
12 understand it, that would say that was appropriate
13 for the use case.

14 Q. (By Mr. Melamed) Do you know how many of
15 these devices integrations took place? 06:05:14

16 A. On the order of -- it's hard to give a --
17 on the order of tens or less than 200, I think,
18 broadly. This was a very, you know -- very limited
19 program where the goal was to enable people to have
20 access to Facebook on other platforms and devices, 06:05:50
21 and that was the purpose of the program. The
22 number of the devices and platforms were supposedly
23 limited.

24 Q. Okay. Does that program still exist?

25 MR. SCHWING: Object to form. 06:06:09

HIGHLY CONFIDENTIAL

1 THE DEPONENT: That program does not 06:06:12
2 still exist, to my knowledge.

3 Q. (By Mr. Melamed) Do you know when that
4 program ceased to exist?

5 A. The announcement of those partnerships 06:06:23
6 would be begun to wound down was made on April --
7 in April 2018, and the wind-down of that program
8 took place in -- in 2018 and early '19.

9 Q. Do you know why the decision was made to
10 wind down that program? 06:06:46

11 MR. SCHWING: Outside the scope. Object
12 to form.

13 THE DEPONENT: Yeah, I -- I don't have
14 like the -- I'm not sure I can speak on behalf of
15 the company here completely. I -- I haven't 06:07:03
16 reviewed the full details.

17 My understanding, though, from a personal
18 perspective is that, first of all, these
19 integrations were not widely used anymore. They
20 were designed and built in a time where there were 06:07:25
21 many more devices and mobile operating systems and
22 platforms than there are today with regards to
23 iOS and Android.

24 And in -- in light of the Cambridge
25 Analytica situation, it was -- it was seen that 06:07:46

Page 882

HIGHLY CONFIDENTIAL

1 the -- the -- the value that these integrations 06:07:52
2 were providing was -- was relatively limited, and
3 the decision was taken to wind down the program.

4 Q. (By Mr. Melamed) Are you familiar with
5 any of the individual partners with whom Facebook 06:08:04
6 engaged in the program?

7 A. I'm familiar with -- with -- a few of
8 them, yes.

9 Q. So the idea was that Facebook provided
10 the user data, all of the user data, for a 06:08:25
11 particular -- well, let me withdraw that.

12 Can you explain how -- what user
13 information did the -- was the partner provided?

14 MR. SCHWING: Object to form.

15 THE DEPONENT: So the goal of this 06:08:49
16 program was to allow users to have -- one of the
17 goals of this program was -- sorry.

18 (Discussion off the stenographic record.)

19 MR. MELAMED: Lesley, you're on --

20 (Discussion off the stenographic record.) 06:09:06

21 MR. MELAMED: Lesley, Lesley, Lesley...

22 (Discussion off the stenographic record.)

23 MR. SCHWING: Why don't we go into a
24 breakout room, because I don't want to hear...

25 SPECIAL MASTER GARRIE: Me neither. 06:09:17

Page 883

HIGHLY CONFIDENTIAL

1 MR. MELAMED: Can we go off the record. 06:09:19

2 MR. SCHWING: Let's go into a breakout
3 room.

4 SPECIAL MASTER GARRIE: Off the record,
5 mute her. 06:09:20

6 MR. MELAMED: Thank you, John. Can you
7 mute -- can you mute Lesley.

8 MR. SCHWING: I'm going into the breakout
9 room.

10 MR. MELAMED: Thank you, Austin. 06:09:20

11 THE VIDEOGRAPHER: Did you want to go off
12 the record? I'm sorry.

13 THE COURT REPORTER: Yes.

14 THE VIDEOGRAPHER: Thank you.

15 Off the record. It's 6:09. 06:09:39

16 (Recess taken.)

17 THE VIDEOGRAPHER: We are back on the
18 record. It's 6:53 p.m.

19 Q. (By Mr. Melamed) Before the break, we
20 were talking about partner integrations. 06:53:04

21 Do you remember that, Mr. Cross?

22 A. I do remember that.

23 Q. And I think you had testified that
24 partner integrations were phased out, and I can't
25 recall if you gave a time period when those -- that 06:53:21

Page 884

HIGHLY CONFIDENTIAL

1 project or that program was phased out. 06:53:24

2 Can you tell me when those were phased
3 out?

4 A. My understanding is that partner
5 integrations, the announcement of the wind-down of 06:53:32
6 that program was in made in April of 2018 and then
7 the wind-down of the program proceeded through 2018
8 and into the early parts of 2019.

9 Q. Did Facebook track the information it
10 made available to partners in the program as part 06:53:53
11 of the integration process?

12 A. Can you help -- help me understand what
13 you mean by "as part of the integration process."

14 Q. Sure. We can take that out of that. We
15 can take that phrase out of the question. So I'll 06:54:20
16 restate it.

17 Did Facebook track the information it
18 made available to its partners when it pursued --
19 you know, when it engaged -- when those partners
20 engaged the process of creating a Facebook-like app 06:54:31
21 for their device?

22 MR. SCHWING: Object to form.

23 THE DEPONENT: Facebook tracked the API
24 calls that those integrations were making.

25 Q. (By Mr. Melamed) So if you were using 06:54:56

Page 885

HIGHLY CONFIDENTIAL

1 one of the devices that were part of this 06:54:57
2 integration process, Facebook would have tracked
3 API calls that the device you were using made to
4 complete the integration process?

5 A. Facebook would have tracked the API calls 06:55:17
6 made by the integration, yes.

7 Q. And did it do so on an individual basis?

8 MR. SCHWING: Object to form.

9 THE DEPONENT: Can you help me understand
10 what you mean by "on an individual basis." 06:55:35

11 Q. (By Mr. Melamed) Sure.

12 So let's make it more concrete. Are you
13 aware whether Huawei was one of the partners, the
14 integration partners?

15 A. There was a number of integration 06:55:55
16 partners. I -- I don't recall all of them in
17 particular. That information is available in the
18 interrogatory responses if you -- if you want to
19 refer to those.

20 Q. Okay. So I'm going to represent to you 06:56:07
21 that Huawei was identified as one of those
22 partners.

23 So if you engaged with a Huawei device
24 and said, yes, I'd like to use Facebook on this
25 device, did Facebook track the API calls that were 06:56:25

HIGHLY CONFIDENTIAL

1 made for your information by Huawei as part of that 06:56:30
2 integration?

3 MR. SCHWING: Object to form.

4 THE DEPONENT: Facebook would have
5 tracked the API calls made by that integration 06:56:45
6 using your -- an access token that had been
7 created, emitted for you.

8 Q. (By Mr. Melamed) And where would that
9 information be logged in Facebook?

10 A. My understanding is that would have been 06:57:13
11 logged in the API Hits tables.

12 Q. That's the -- the API Hits table that
13 later became split as the API www and API mobile
14 tables?

15 MR. SCHWING: Object to form. 06:57:36

16 Q. (By Mr. Melamed) All I'm trying to do is
17 make sure I understand which table you're talking
18 about.

19 A. My understanding is that information
20 would have been logged in the API Hits table when 06:57:47
21 it was a single table, and then it would have been
22 logged in one of the API Hits subsequent tables,
23 depending on the app ID.

24 Q. And so the information would have been
25 logged by app ID, so using this example, by Huawei 06:58:06

Page 887

HIGHLY CONFIDENTIAL

1 integration app; is that correct? 06:58:12

2 A. So my understanding is the way the
3 logging works is when an app makes a request to the
4 API, the fact that they made a request is logged
5 and then information about the request is logged, 06:58:26
6 so there would be a -- a row of the requests that
7 each individual application has made.

8 Q. And do you know whether Facebook still
9 has the logs of those requests from integration
10 partners? 06:58:55

11 MR. SCHWING: It's outside the scope of
12 the deposition.

13 THE DEPONENT: I'm not aware as to
14 whether Facebook retains those logs dating back
15 that far. 06:59:14

16 Q. (By Mr. Melamed) Do you know whether
17 Facebook has any logs reflecting the partner
18 integrations, the data that was requested as part
19 of the partner integrations?

20 MR. SCHWING: Object to the form. 06:59:31

21 THE DEPONENT: My understanding is that
22 the method table, as we've previously referred to
23 it, would include information about the API
24 requests made by device integrations.

25 Q. (By Mr. Melamed) Did Facebook ever 06:59:59

Page 888

HIGHLY CONFIDENTIAL

1 receive information about users from third parties? 07:00:00

2 MR. SCHWING: Objection to form.

3 THE DEPONENT: Can you break the question

4 down -- down for me a little. Did Facebook -- can

5 you ask the question again? 07:00:16

6 Q. (By Mr. Melamed) Sure.

7 So I'm moving on to topic 8, and the

8 first subtopic in topic 8 is the type -- is whether

9 and how Facebook tracked the type and purpose of

10 data and information Facebook received from third 07:00:28

11 parties. So I'm just starting with a predicate

12 question.

13 Did Facebook receive information from

14 third parties about users?

15 MR. SCHWING: Objection. Vague. 07:00:43

16 THE DEPONENT: Can you help me understand

17 what you mean by "about users."

18 Q. (By Mr. Melamed) Did Facebook receive

19 information about any of its users from a third

20 party and not directly from the user or the user's 07:01:00

21 friends or anybody else -- sorry. So I'll stop

22 there. User or user friends?

23 MR. SCHWING: Same objection.

24 THE DEPONENT: Again, I'm finding it hard

25 to give an answer to the question in the way 07:01:22

Page 889

HIGHLY CONFIDENTIAL

1 it's -- in the way it's phrased. There's a number 07:01:24
2 of potential different interpretations which I --
3 which I'd like to try and understand before I give
4 an accurate answer.

5 Q. (By Mr. Melamed) What are the potential 07:01:36
6 interpretations that are making my question
7 unclear?

8 MR. SCHWING: Object to form.

9 THE DEPONENT: So an example that I'd
10 like to understand if you mean to include is where 07:01:49
11 a user uses a third-party app to post stories and
12 content back to Facebook.

13 Q. (By Mr. Melamed) Is that one way that
14 Facebook received information about users from
15 third parties? 07:02:11

16 A. It depends on your interpretation of
17 whether it comes from a third party. So that's --
18 that's the thing I'm having -- just I want to get
19 clarity on to make sure I'm going to give you an
20 accurate answer. 07:02:31

21 Q. Do you interpret that as coming from a
22 third party?

23 MR. SCHWING: Object to form.

24 THE DEPONENT: The API request is being
25 made by -- typically made by code written by a 07:02:46

HIGHLY CONFIDENTIAL

1 third party, but it's in response generally to a 07:02:50
2 user's activity in that app.

3 Q. (By Mr. Melamed) Did Facebook ever
4 receive data about individual users through the use
5 of the Facebook Pixel? 07:03:06

6 MR. SCHWING: Outside of the scope of the
7 deposition to the extent of at least advertising.

8 You can go ahead and answer if you know,
9 sir.

10 THE DEPONENT: Yeah. So the Facebook 07:03:19
11 Pixel is a -- an advertising -- advertising
12 product. My understanding is that a user was using
13 an app or website integrated with the Facebook
14 Pixel, then some information about activities in
15 that API or website would be shared back with 07:03:39
16 Facebook. But -- the specifics of how the Facebook
17 Pixel works is not -- is not something I'm
18 particularly well qualified to -- to speak to.

19 Q. (By Mr. Melamed) Did Facebook use its
20 Pixel product for anything other than 07:03:55
21 advertising-related purposes?

22 A. The Facebook Pixel is an -- is an
23 advertising product, and my understanding is its
24 purpose is to do with -- with advertising.

25 Q. What about the Facebook Like button? Did 07:04:23

HIGHLY CONFIDENTIAL

1 Facebook ever receive information from the use of 07:04:27
2 the Facebook Like button on third-party websites?

3 A. So in order to -- to render a Like
4 button, if a user visits a Web page that has the
5 Like button embedded, then the Like button would 07:04:46
6 get -- a call would be made to Facebook servers
7 to -- to render the Like button, and in the act of
8 doing that, Facebook would know that a Like button
9 had been rendered on a particular page. If the
10 user who had logged in -- sorry. 07:05:04

11 If the user was logged in to Facebook at
12 the time that they noted the Web page with the Like
13 button in it, Facebook would know that that Like
14 button had been rendered on behalf of the user.

15 Q. Did -- was it required -- well, let me 07:05:27
16 step back and ask a different question.

17 You said that if the user was logged in
18 to Facebook at the time they clicked the Like
19 button on another site, then the information would
20 be rendered back to Facebook that that individual 07:05:44
21 had clicked it; is that correct?

22 A. Sorry. No. I want to clarify.

23 What I mean is if a user visits a website
24 that has embedded the Like button on it, then a
25 call will be made to Facebook servers to render the 07:06:03

HIGHLY CONFIDENTIAL

1 Like button. 07:06:06

2 If the user who visited that Web page was
3 logged in to Facebook, then Facebook would know
4 that the user was logged in, and that was
5 information used to make the Like button function. 07:06:26

6 Q. Would the Like button -- let me withdraw
7 that.

8 Was it a prerequisite for the Like button
9 appearing on a -- on a third party's website that
10 the user be logged in to Facebook before visiting 07:06:46
11 that website?

12 A. Sorry. I'm not sure I understand the --
13 the question. Can you ask -- can you ask it again.

14 Q. Sure.

15 So let's say you go to a website and you 07:06:59
16 see a Like button. Does -- does that indicate to
17 Facebook -- let me withdraw that.

18 Does that mean that you have -- you are
19 logged in to Facebook in order to see that Like
20 button? 07:07:15

21 A. No. The Like button would be rendered --
22 the people -- if -- if they were logged in to
23 Facebook or if they were not logged in to Facebook.

24 Q. And now let's say you are on the website
25 with the Like button and you click -- you select 07:07:32

Page 893

HIGHLY CONFIDENTIAL

1 the Like button. You click it. 07:07:34

2 In what circumstances would that
3 information be communicated -- that you had clicked
4 the Like button be communicated back to Facebook?

5 MR. SCHWING: Object to form. 07:07:48

6 THE DEPONENT: Typically the purpose of
7 the Like button is that when you click it, you're
8 telling Facebook that you like the page on which
9 it's embedded or the entity for which it is set up.
10 So the act of clicking on the Like button would 07:08:05
11 tell Facebook that you had liked it.

12 Q. (By Mr. Melamed) Would you need to have
13 first opened a browser page or the Facebook app and
14 logged in before Facebook could track that you had
15 clicked the Like button? 07:08:26

16 A. Yes. For Facebook to register a Like, it
17 needs to be associated with your Facebook user
18 account, and so if you clicked the Like button, the
19 Like would not be registered unless you were logged
20 in to Facebook. 07:08:47

21 Q. Is it -- is it necessary that you have
22 logged in to Facebook during that browsing session
23 in order for the Like button to -- communication
24 about your clicking the Like button to be
25 communicated back to Facebook? 07:09:08

Page 894

HIGHLY CONFIDENTIAL

1 settings as well, for example. But typically, the 07:10:57
2 default browser behavior is the -- unless you log
3 out of Facebook, you remain logged in to Facebook
4 unless some other session invalidation event has
5 occurred. 07:11:16

6 Q. What other types of sessions invalidation
7 events are there other than logging out?

8 A. So, for example, if you change your
9 password, if you -- if you have changed your
10 password on your phone, for example, then Facebook 07:11:31
11 may log you out of other places in order to protect
12 your security. That's one example of when a
13 session -- a Facebook session may be terminated.

14 Q. When that -- when you have selected that
15 Like button, does Facebook track the information 07:11:53
16 internally that you have selected a Like button on
17 the site you were visiting?

18 MR. SCHWING: Object to form.

19 THE DEPONENT: Can you just be clear
20 about what mean we by "select." Earlier you talked 07:12:06
21 about "click on the Like button." Is -- is that
22 what you mean?

23 Q. (By Mr. Melamed) I'm sorry. I don't
24 mean to be -- I'm not meaning to be overly
25 technical or trick you. 07:12:17

HIGHLY CONFIDENTIAL

1 Let's say you click -- you go to visit a 07:12:18
2 website. You click on a Like button. That
3 information, we've established, if you have an open
4 session, is communicated back to Facebook, correct?

5 A. Correct. If you click on a Like button 07:12:28
6 and you're logged in to Facebook, then Facebook
7 will register the fact that you've liked the URL
8 entity for which the Like button has been set up.

9 Q. Where does Facebook register that
10 information in its internal systems? 07:12:44

11 A. So clicking on the Like button --
12 sorry -- sorry.

13 MR. SCHWING: It's okay.

14 THE DEPONENT: When you like something
15 using the Like button, that is considered a part of 07:13:01
16 your Facebook profile, and it will be logged in, in
17 general, what we call the "social graph," so the --
18 the database that stores profile information and --
19 and activities about you.

20 Q. (By Mr. Melamed) And that is in TAO; is 07:13:23
21 that correct?

22 A. TAO is a -- is a cache on -- on top of
23 the -- the Facebook database. So typically, yes,
24 when you perform a user action like that, it will
25 first be stored in TAO. 07:13:43

HIGHLY CONFIDENTIAL

1 Q. And then it would also be stored in Hive; 07:13:46
2 is that right?

3 MR. SCHWING: Object to form.

4 THE DEPONENT: So generally, Hive would
5 also include the fact that you clicked on the Like 07:14:03
6 button, yes.

7 Q. (By Mr. Melamed) Did Facebook ever
8 collect information about a user when the user
9 logged in to Facebook from a mobile device?

10 Sorry. Let me restate that. 07:14:23

11 Did Facebook collect user's -- ever
12 collect a user's phone number when the user logged
13 in from a mobile device?

14 A. Sorry. Let's -- I'm not sure I
15 understand -- again, understand the question. 07:14:44

16 If a user logged in to -- to -- to what?

17 Q. To Facebook. If a user logged in to
18 Facebook from their mobile device, did Facebook
19 ever collect that user's phone number via that
20 interaction without -- without explicitly asking 07:15:02
21 the user to collect that information?

22 A. So, again, are you talking about where a
23 user logs in to Facebook using a phone number?

24 Q. No. Just logs in without using a phone
25 number, using the user name and password that's not 07:15:22

Page 898

HIGHLY CONFIDENTIAL

1 a phone number, from a mobile device. Did Facebook 07:15:26
2 ever collect, as part of that, the phone number
3 that the user had logged in -- the phone number of
4 the device that the user had logged in?

5 MR. SCHWING: Object to form. 07:15:40

6 THE DEPONENT: Yeah, I'm -- I'm not
7 certain that -- that -- I don't know if that's
8 happened or not. It's possible that mobile -- the
9 mobile operating system or the carrier transmits
10 some of that information. I'm -- I'm not an expert 07:16:02
11 in -- in how Facebook's login processes work and
12 what -- what information is exchanged with Facebook
13 from the device or the carrier that they're logging
14 in on.

15 Q. (By Mr. Melamed) I'm asking because I'm 07:16:16
16 trying to establish whether Facebook collected
17 these things and then, if so, where they tracked
18 them. And that's the connection to the topic, just
19 to be clear.

20 Did Facebook collect users' mobile device 07:16:30
21 IDs?

22 A. Can you be more specific, "mobile device
23 IDs."

24 What do you mean by that? Sorry.

25 Q. Did Facebook ever collect a user's IDFA 07:16:59

HIGHLY CONFIDENTIAL

1 when the user logged in to Facebook using their 07:17:08
2 mobile device?

3 A. By "IDFA," you're referring -- what are
4 you referring to with "IDFA"? You're referring to
5 Apple's -- Apple's identifier, which is specific to 07:17:25
6 iOS?

7 Q. Let's -- let's start there. Did Facebook
8 ever collect a user's Apple identifier that was
9 specific to iOS when the user logged in to
10 Facebook? 07:17:38

11 A. Logged in to Facebook when? On a mobile
12 or on -- again, I -- again, I'm not trying to be
13 difficult here. I want to make sure I'm giving you
14 the best possible answers I can.

15 These -- these terms and topics are very 07:17:54
16 complicated, and I want to make sure I'm giving you
17 the right answer.

18 Q. If a user logged in to Facebook using an
19 Apple mobile device, did Facebook -- at any point
20 in Facebook's history relevant to this case, 2007 07:18:05
21 to present, did Facebook collect a device
22 identifier?

23 A. Again, maybe I'm back to -- we got to --
24 a specific type of device identifier there, but
25 we're going back to general device identifiers, 07:18:27

Page 900

HIGHLY CONFIDENTIAL

1 which is a term I'm not sure I fully understand. 07:18:31

2 I see Special Master Garrie --

3 Q. Are you --

4 A. -- is on the -- on the call.

5 THE DEPONENT: Is there guidance you'd 07:18:37

6 like to give, Mr. Garrie?

7 SPECIAL MASTER GARRIE: Not yet.

8 Q. (By Mr. Melamed) Did -- when Facebook --
9 when a user logged in to Facebook using an Apple
10 mobile device, did Facebook ever collect the IDFA, 07:18:48
11 which is the Apple device identifier?

12 A. My understanding is that while I'm not an
13 expert, again, at Facebook's login systems and how
14 that works, my understanding is that yes, if you
15 logged in to Facebook -- a Facebook app on iOS, 07:19:11
16 then the Facebook app -- then Apple would provide
17 the IDFA to Facebook.

18 Q. And if the user logged in to the Facebook
19 via Android, would Facebook collect the user's GA
20 ID? 07:19:37

21 A. I'm less familiar with -- with -- with
22 how Android works. Assuming they're relatively
23 similar, my understanding is that yes, Google would
24 provide Facebook with an ID for that device.

25 Q. How -- how did Facebook associate those 07:19:59

Page 901

HIGHLY CONFIDENTIAL

1 IDs with users in their -- in Facebook's internal 07:20:05
2 systems?

3 MR. SCHWING: Outside of the topic, the
4 scope of the deposition. It's vague.

5 THE DEPONENT: Yeah, I -- I'm not an 07:20:23
6 expert in -- in how these -- how these systems
7 work. From -- from my experience, though, what I
8 do know is that if you are logged in to Facebook on
9 a device and that device has provided Facebook with
10 such a device identifier, then that connection 07:20:44
11 would be associated with the user in Facebook's
12 databases, although the precise nature and how that
13 was stored is not something I'm -- I'm an expert
14 on. I cannot give canonical testimony on.

15 Q. (By Mr. Melamed) And so your -- you do 07:21:05
16 not want to provide testimony on -- well, let me
17 state this in a positive way.

18 Can you identify how Facebook tracked
19 mobile device IDs that were associated with users?

20 MR. SCHWING: Outside the scope of the 07:21:28
21 deposition.

22 You can answer, if you can answer.

23 THE DEPONENT: My understanding is that
24 when a user logged in to a mobile device and that
25 mobile device provided the Facebook app on that 07:21:41

Page 902

HIGHLY CONFIDENTIAL

1 device with an identifier, then that would be 07:21:44
2 logged in Facebook's data infrastructure as being
3 associated with the user ID who logged in on that
4 device.

5 Q. (By Mr. Melamed) Do you know where that 07:22:02
6 information would be tracked? Is there a name of a
7 document or a data system that tracks that
8 association?

9 MR. SCHWING: Same objections.

10 THE DEPONENT: Again, precisely the 07:22:13
11 systems that -- that are used to -- to store that
12 information. I think Hive -- the association would
13 be -- would have been and would be stored in Hive.
14 It would likely also have been stored in TAO and
15 the Facebook -- you know, in TAO, in those 07:22:38
16 databases.

17 Q. (By Mr. Melamed) Are you familiar with
18 the term "reciprocity" as it relates to the
19 relationship between Facebook and developers -- let
20 me break this down. 07:23:02

21 Are you familiar with the term
22 "reciprocity" as it is used inside Facebook?

23 MR. SCHWING: Objection as vague.

24 THE DEPONENT: I -- I've heard the term
25 used inside Facebook and seen it used in -- in some 07:23:14

Page 903

HIGHLY CONFIDENTIAL

1 documents. 07:23:18

2 Q. (By Mr. Melamed) What is your
3 understanding of what the term means?

4 MR. SCHWING: Objection.

5 Q. (By Mr. Melamed) Inside Facebook? 07:23:23

6 MR. SCHWING: Objection. Vague. Outside
7 the scope.

8 Go ahead.

9 THE DEPONENT: Yeah, I can't speak to how
10 that term is used inside Facebook in its entirety. 07:23:35

11 There's likely a number of ways in which that term
12 has or has not been used by different teams at
13 different times. The thing I -- the context I'm
14 aware of it being used in is -- to do with the
15 Facebook developer platform. 07:23:56

16 Q. (By Mr. Melamed) And can you explain the
17 context -- the definition of that term and the
18 context in which you are familiar with it being
19 used?

20 MR. SCHWING: Object to form. 07:24:09

21 THE DEPONENT: I'm aware of the term
22 being used to refer to information being made
23 available to developers and users having the option
24 to share similar data back to Facebook as part of a
25 Facebook integration. 07:24:40

Page 904

HIGHLY CONFIDENTIAL

1 Q. (By Mr. Melamed) How do use users share 07:24:46
2 information back to Facebook through third-party
3 developers?

4 MR. SCHWING: Object to form.

5 THE DEPONENT: Users using Facebook 07:24:59
6 platform apps have -- used to have the ability to
7 share stories from the app base back to Facebook
8 that would appear on their Facebook timeline and
9 friends' newsfeeds.

10 Q. (By Mr. Melamed) Is there any other 07:25:18
11 information that third-party apps provided to
12 Facebook about individual users?

13 MR. SCHWING: Object to form.

14 THE DEPONENT: Again, can you be specific
15 about the -- about the time period. Is that the 07:25:45
16 entire thing?

17 Q. (By Mr. Melamed) Let's start in 2007.
18 What kind of information could -- could apps share
19 back to Facebook about individual users?

20 MR. SCHWING: Object to form. 07:26:01

21 THE DEPONENT: So when an app is making
22 API calls using a user's access token, the nature
23 of making the API call is potentially indicative of
24 a user's activity in that app, although it isn't
25 necessarily. 07:26:24

HIGHLY CONFIDENTIAL

1 Q. (By Mr. Melamed) What about information 07:26:39
2 that users provided a third-party app directly?
3 Did third-party apps ever provide that information
4 back to Facebook?

5 MR. SCHWING: Objection. Vague. 07:26:54

6 THE DEPONENT: Sorry. Can you ask the
7 question again.

8 Q. (By Mr. Melamed) I'm not trying to be
9 difficult here. I'm trying to establish
10 foundationally whether Facebook was receiving 07:27:22
11 information -- so Facebook provided information to
12 app users through Facebook could provide
13 information to apps, correct?

14 A. Through the Facebook platform, users
15 could provide information to apps, yes. 07:27:37

16 Q. And as -- within the definition of
17 "reciprocity," as you explained it, there was this
18 idea that there could be an exchange, which meant
19 that users should also be able to enable apps to
20 provide information back to Facebook, their 07:27:52
21 information back to Facebook, correct?

22 MR. SCHWING: Misstates testimony.
23 Object to form.

24 THE DEPONENT: So going back to that
25 definition of "reciprocity" as -- as I understand 07:28:05

Page 906

HIGHLY CONFIDENTIAL

1 it, it's a very-high level idea that if an app is 07:28:08
2 accessing information on behalf of a user, that
3 that app would also offer the user the opportunity
4 to share similar information back to Facebook.

5 Q. (By Mr. Melamed) Did that process ever 07:28:33
6 occur? Did apps ever provide -- did users --
7 did -- were users ever able to enable an app to
8 provide information back to Facebook?

9 A. Yes. One of the common features of the
10 Facebook platform was that it allowed users to 07:28:55
11 choose to share activity in the app back to
12 Facebook.

13 Q. How did Facebook track the information
14 that it received from users through third-party
15 apps? 07:29:14

16 A. If the user chose to share their activity
17 in an app back to Facebook, then, for example, to
18 post a story or to share a story with their
19 friends, then -- then yes, that -- that information
20 would be stored against the user's Facebook profile 07:29:36
21 and made available on their timeline to their
22 friends.

23 Q. Where would that -- in which internal
24 Facebook systems would that information be stored?

25 A. If the user chose to share a story back 07:29:56

HIGHLY CONFIDENTIAL

1 to Facebook from a third-party app, then that would 07:29:58
2 be stored in TAO and made available on the user's
3 timeline and then potentially rendered in their
4 friends' newsfeeds.

5 Q. The information that users could share to 07:30:18
6 Facebook through third-party apps was not limited
7 to stories, correct?

8 A. The -- the information that users could
9 share or choose to share back to Facebook included
10 stories, posts for their timeline, and also at a 07:30:38
11 time included what was known as Open Graph actions.

12 Q. Can you provide a description of what
13 Open Graph actions are?

14 A. Open Graph refers to a -- a -- a product
15 that Facebook had between 2011 and sometime later 07:31:02
16 where developers could share structured activity
17 about a user's activity in their app back to
18 Facebook so it could be shared with their -- their
19 friend -- shared with their friends on their
20 Facebook timeline. 07:31:30

21 Q. Was all of the information that was
22 shared back to Facebook through Open Graph actions
23 shared with the user's friends via the user's
24 timeline?

25 MR. SCHWING: Object to form. 07:31:45

Page 908

HIGHLY CONFIDENTIAL

1 THE DEPONENT: The information shared 07:31:51
2 back to Facebook, the user could choose who had --
3 which of their friends had the permissions to -- to
4 see that information.

5 Q. (By Mr. Melamed) Was there any 07:32:20
6 information from a third-party app shared back to
7 Facebook that was associated with the user that
8 Facebook did not make available to share via the
9 user's timeline?

10 MR. SCHWING: Object to form. 07:32:42

11 THE DEPONENT: Sorry. Can -- can you ask
12 that again.

13 Q. (By Mr. Melamed) Was there any
14 information from a third-party app that was shared
15 back to Facebook associated with an individual user 07:32:53
16 that Facebook did not make available via the user's
17 timeline -- did not make available to be shared via
18 the user's timeline?

19 MR. SCHWING: Same objections.

20 THE DEPONENT: So referring back to my -- 07:33:16
21 my previous testimony about when an app makes an
22 API call using an access token of a user, that is
23 potentially indicative of the user's activity in an
24 app, and that wouldn't necessarily be shared on a
25 user's timeline. 07:33:39

Page 909

HIGHLY CONFIDENTIAL

1 Q. (By Mr. Melamed) Was there any other 07:33:42
2 type of information other than the fact of an API
3 call being potentially indicative of the user's
4 activity that would be shared back to Facebook but
5 not be made available for the user to share via 07:33:56
6 their timeline?

7 A. So there was -- a product called App
8 Events at a time which allowed developers to share
9 activity in their application back to Facebook for
10 the purposes of app analytics. 07:34:26

11 Q. What time period did App Events exist?

12 A. My understanding is App Events were built
13 or made available around 2013 to 2014, and I think
14 that product was deprecated around 2017, 2018,
15 although I'm not sure on the specific dates. 07:35:01

16 Q. Who would you ask if you wanted to know
17 the specific dates during which App Events was
18 available to be used by third parties?

19 A. The first thing I'd do is look -- look on
20 the Facebook developer website and see if I could 07:35:18
21 ascertain that information myself.

22 Q. Okay. When Facebook received information
23 about App Events in this context, how did it
24 associate that information in its internal systems
25 with individual users? And I'm not asking for 07:35:40

HIGHLY CONFIDENTIAL

1 technical explanation; I'm asking for how -- 07:35:42

2 Let me restate it to make it more
3 general.

4 How did Facebook track the information
5 that it received from App Events about an 07:35:50
6 individual user?

7 MR. SCHWING: Object to form.

8 THE DEPONENT: So Facebook would have
9 tracked App Events in its various databases,
10 including Hive. 07:36:10

11 Q. (By Mr. Melamed) Do you know in which
12 tables it could track App Events?

13 A. My understanding is that the API Hits
14 table would include App Events where the -- where
15 there was a logged-in user. 07:36:35

16 Q. Again, I don't mean to make you repeat
17 this testimony. I really just do want to make sure
18 I'm understanding it.

19 The API Hits table you're describing, is
20 that the -- what subsequently became the API -- the 07:36:48
21 API_hits_mobile and API_hits_www tables?

22 A. That's my understanding. These -- these
23 App Events were implemented as Graph API calls, and
24 as such, the information would be tracked in -- in
25 those tables. 07:37:17

Page 911

HIGHLY CONFIDENTIAL

1 Q. Other than from advertisers and data 07:37:26
2 brokers, did Facebook ever receive payment from any
3 third party for user information?

4 A. No. Facebook does not sell user data.

5 Q. Let me -- let me just make sure I 07:37:43
6 understand your answer. I just asked whether it
7 received payment. So is the answer the same?

8 A. Facebook does not sell user data, and
9 therefore I'm not aware of a time Facebook has
10 received payment for user data. 07:38:05

11 Q. Has Facebook ever received any payment
12 for aggregated user data other than the context
13 that you're now testifying today as the targeted
14 advertising and data brokers?

15 A. I'm -- I'm not aware of any time Facebook 07:38:35
16 has received payment for aggregated user data.

17 Q. Did Facebook ever evaluate the value to
18 Facebook of aggregated user data?

19 MR. SCHWING: Object to form.

20 THE DEPONENT: Sorry. The value to 07:39:08
21 Facebook of aggregated user data? I'm sorry. I'm
22 not sure I understand the question.

23 Q. (By Mr. Melamed) Let me restate it more
24 simply.

25 Did Facebook ever evaluate the value to 07:39:16

Page 912

HIGHLY CONFIDENTIAL

1 Facebook of user data? 07:39:19

2 MR. SCHWING: Object to form. Outside
3 the scope of the deposition.

4 THE DEPONENT: I'm not sure how to answer
5 that. I'm just sure not how to answer that 07:39:39
6 question.

7 Like -- yeah. It's a -- it's a very --
8 I'm not sure how to answer that question.

9 Q. (By Mr. Melamed) Did Facebook ever
10 attempt to evaluate the value to Facebook of any 07:40:00
11 particular type of user data?

12 MR. SCHWING: Object to form.

13 THE DEPONENT: Again, could you give me
14 an example of what you mean by "type of user data"?

15 Q. (By Mr. Melamed) Did Facebook ever 07:40:21
16 attempt to evaluate the value to Facebook of data
17 about where a user was educated, the user,
18 you know -- an individual data point, an individual
19 piece of information?

20 MR. SCHWING: Object to form. 07:40:50

21 THE DEPONENT: Again, I'm not sure how to
22 answer that -- that question. It's -- it's
23 possible that an analysis was done across the
24 15-year time period. I -- like -- it's hard to --
25 hard to -- hard to understand what's meant by -- by 07:41:12

Page 913

HIGHLY CONFIDENTIAL

1 "value" in this context or even evaluate. 07:41:16

2 So I'm just not sure I can answer that
3 question.

4 Q. (By Mr. Melamed) When Facebook engaged
5 in the process of determining whether to deprecate 07:41:29
6 certain types of API calls, did it conduct any
7 evaluation of the potential financial impact to
8 Facebook of deprecating those calls?

9 MR. SCHWING: The question is vague.

10 THE DEPONENT: I've seen analysis that 07:41:50
11 was done to estimate the potential financial impact
12 of -- of -- of a range of API changes that -- that
13 were made in 2014, and the analysis, as I
14 understand it, looked at the totality of the
15 changes rather than user data specifically. 07:42:15

16 Q. (By Mr. Melamed) Is that a specific
17 document you're referencing?

18 A. I'm thinking back to a document that was
19 prepared to try to understand the impact of the
20 changes in 2014 on the games ecosystem. 07:42:36

21 Q. As a matter of course, did Facebook track
22 the valuation of -- its valuation of different
23 types of user data over time?

24 MR. SCHWING: Object to form.

25 THE DEPONENT: Again, hard -- hard to 07:43:00

Page 914

HIGHLY CONFIDENTIAL

1 answer that question by -- do you mean -- yeah. 07:43:01

2 It's like very -- very broad question. Hard to
3 give a specific answer.

4 Could you -- could you be more specific
5 about a context, and maybe that would help give an 07:43:12
6 accurate answer.

7 Q. (By Mr. Melamed) Did Facebook ever look
8 at the value of the information it was receiving
9 about its users and evaluate what that value was
10 over time? Did it track how much different user 07:43:27
11 information was worth over time?

12 MR. SCHWING: Object to form.

13 THE DEPONENT: So I can give some
14 examples that might -- might help here. For
15 example, if an app -- if a user is using an 07:43:48
16 application and is sharing stories from the
17 application back to Facebook, then it was using
18 that, then Facebook would track the monthly active
19 users involved in -- in using the application and
20 would -- would track the -- the stories shared from 07:44:09
21 that application and would -- likely also track
22 clicks from Facebook back to that application that
23 the user or a user's friends had -- had taken from
24 Facebook.

25 So there's -- there's are three types of 07:44:32

Page 915

HIGHLY CONFIDENTIAL

1 things that I'm aware of that were tracked in 07:44:34
2 relation to the Facebook developer platform in
3 third-party developers, which is what I believe
4 that this case is broadly about.

5 Q. (By Mr. Melamed) What -- let me withdraw 07:44:50
6 that.

7 For those examples, were there particular
8 document types that provided this tracking
9 information, names of reports, internal systems,
10 et cetera? 07:45:05

11 MR. SCHWING: The question is vague.

12 THE DEPONENT: Again -- typically --
13 typically, this kind of -- this information would
14 be tracked in -- in Hive, Facebook's data
15 warehouse, and may have been propagated into other 07:45:19
16 systems as well. But typically, if I wanted -- if
17 somebody wanted to understand how many users were
18 using an application or the stories being shared
19 from it, typically you would -- you would query
20 that information in Hive. 07:45:36

21 Q. (By Mr. Melamed) We've talked about the
22 method table -- correct? -- during -- during your
23 testimony today?

24 A. Yes, we've talked about the method table.

25 Q. Can you tell me what types of information 07:46:11

Page 916

HIGHLY CONFIDENTIAL

1 are reflected in the method table? 07:46:14

2 A. So going -- going from memory here.

3 These are some of the things I recall in that
4 table.

5 The first is the app ID, which refers to 07:46:30
6 the specific Facebook application that would have
7 made the API call.

8 Another thing that was tracked was the
9 API method, which refers to when an API call is
10 made to a particular URL, that maps to -- to a 07:46:52
11 method, which is the atomic unit of -- of an API
12 response on the Facebook side.

13 The next thing that were tracked is the
14 number of unique users whose access token was being
15 used to request that information on that given day 07:47:15
16 and then a count of the number of requests that the
17 given app made to the given method on the given
18 day.

19 And then my understanding is that another
20 column is the count of errors, which will be 07:47:38
21 proportion of the calls that were made.

22 So from my understanding, that's --
23 that's some of the information at least tracked in
24 that table.

25 Q. You just -- you just described the method 07:47:53

Page 917

HIGHLY CONFIDENTIAL

1 as "the atomic unit" of an API response on the 07:47:55
2 Facebook side. Can you elaborate on the
3 relationship between an API call and a method?

4 A. A method is -- refers to a code -- a
5 piece of code or a set of code on -- in Facebook's 07:48:17
6 infrastructure that is written to respond to a
7 given API request.

8 When an app makes a call to the API,
9 it -- it supplies information it would like in that
10 request, and those requests are mapped to a method. 07:48:45

11 Q. Is there a one-to-one mapping between the
12 API and the method that is used to call the
13 information requested by that API?

14 A. So that -- that depends on your -- on the
15 specific definition of API which is being used 07:49:09
16 in -- in context.

17 So I wouldn't say it's a necessarily a
18 one-to-one mapping, so -- yeah, I wouldn't say it's
19 necessarily a one-to-one mapping.

20 Q. Can you explain why there isn't 07:49:23
21 necessarily a one-to-one mapping?

22 A. So, for example, we talk about the Graph
23 API as a -- as a -- as a thing. But the Graph API
24 is a -- is a collection of methods, and so
25 sometimes people are referring to it an API and 07:49:41

Page 918

1 they mean the Graph API or another company's API 07:49:44

2 or -- or, you know, something like that, or they

3 may be referring to an endpoint -- an API endpoint,

4 or they may be referring to an API synonymous with

5 a method. 07:50:02

```
6           So the terminology used there is -- is
7   ambiguous, and the -- changes depending on the
8   context.
```

9 Q. I'm sorry.

```
10         Does Facebook maintain an index that maps      07:50:11
11         methods to specific API requests?
```

```
12         A.   There is code -- there is code that maps
13         an incoming API request to the method which exists
14         to serve that request.
```

| | | |
|----|--|----------|
| 15 | Q. Is that information publicly available? | 07:50:35 |
|----|--|----------|

16 A. That's -- that refers to Facebook's
17 internal systems of how -- how the API is
18 documented publicly and then how Facebook's
19 internal systems map an incoming API request to a
20 method, which is a concept inside Facebook's code 07:51:05
21 base.

22 Q. I'm asking because if the method table
23 provides the method, I'm curious how we can use
24 that method that's identified to map to an
25 individual API request. 07:51:23

HIGHLY CONFIDENTIAL

1 Does that make -- does my -- so I'm 07:51:26
2 asking whether Facebook maintains something that
3 would enable us to do that.

4 A. Facebook maintains ways to resolve a
5 method from a specific API call. I'm not aware of 07:51:40
6 a programmatic method that would map a method to,
7 say, part of the Facebook developer documentation,
8 although those mappings can be -- can be drawn
9 manually.

10 (Exhibit 426 was marked for 07:51:59
11 identification by the court reporter and is
12 attached hereto.)

13 MR. MELAMED: I've introduced what's been
14 marked as Exhibit 426. Exhibit 426 is an excerpt
15 from a CSV file produced in this case, Bates number 07:52:26
16 FB-MDL-MTHD-00080.csv.

17 Mr. Cross and Counsel, for the record,
18 these files are each individually so large that we
19 could not share them, so this is an excerpt of ten
20 rows of one of the -- what have been identified by 07:52:52
21 counsel as the method table files. I just want to
22 use this as an example to talk through. I'm not
23 asking questions about these individual entries
24 other than to understand what they -- the
25 information that they represent. 07:53:08

Page 920

HIGHLY CONFIDENTIAL

1 Q. (By Mr. Melamed) Mr. Cross, are you 07:53:08
2 familiar with the type of information that's
3 reflected in this document, Exhibit 426?

4 A. Yes, I am.

5 Q. And you reviewed it in preparation for 07:53:24
6 today?

7 A. I -- I -- I think I reviewed this sample
8 in preparation for today, and I -- I've worked with
9 API methods previously.

10 Q. And so can you see my screen, that I'm 07:53:36
11 sharing Exhibit 426?

12 A. I can, but I also have the information
13 available, so I don't think you need to, unless
14 it's useful for you, Mr. Melamed.

15 MR. MELAMED: Thank you. I'll share for 07:53:50
16 now. I've enlarged -- the only change I've made to
17 what I think you downloaded and is enlarged in
18 column size just so we can see a little bit more of
19 what's in the column.

20 Q. (By Mr. Melamed) When you used the 07:53:59
21 method table internally, is this the format that is
22 returned to you?

23 A. Yes, this matches how information is
24 represented in the method table.

25 Q. So if you look at column A in that, the 07:54:19

Page 921

HIGHLY CONFIDENTIAL

1 header of column D is DS. 07:54:22

2 Do you see that?

3 A. I do.

4 Q. And what does DS stand for in this

5 context? 07:54:28

6 A. DS is the standard way in which Hive
7 tables are partitioned. It would refer to a
8 particular date.

9 Q. So all of the entries on this excerpt
10 reflect entries from December 19th, 2019; is that 07:54:46
11 accurate?

12 A. My understanding is that these were --
13 would reflect API calls made by a given application
14 in a given 24-hour time window indicated by the
15 date, yes. 07:55:04

16 Q. And column B is app ID.

17 Do you see that?

18 A. I do.

19 Q. And that is a -- is the app ID a wholly
20 numeric identifier? 07:55:17

21 A. Yes. App IDs follow Facebook's standard
22 ID infrastructure and are numeric in nature.

23 Q. And what is Facebook's standard ID
24 infrastructure?

25 A. So what I mean by that is when an object 07:55:43

Page 922

HIGHLY CONFIDENTIAL

1 is created in Facebook's TAO -- TAO-fronted 07:55:46
2 databases, that entity will be given an ID, and
3 those IDs are used for -- today are used for any
4 entity in the Facebook social graph database.

5 Q. Is there -- 07:56:13

6 A. Let -- let me back up. I want to make
7 sure the record is clear on this.

8 There are -- today, if an entry is
9 created in -- in Facebook's databases, it will be
10 given an ID, but there are entities in Facebook's 07:56:27
11 databases which were created before this ID scheme
12 was -- was created, and in those cases, those
13 entities may have a different form of ID.

14 Q. When was this ID scheme created?

15 A. I don't -- I'm not sure on the precise 07:56:48
16 date. This is a question about Facebook's general
17 data infrastructure, but my understanding is it's
18 worked this way or a variant of this way during
19 my -- my entire tenure at Facebook.

20 Q. And are you familiar with what the 07:57:06
21 structure of an API ID was before the time period
22 when the --

23 This is a super simple question. Let me
24 restate this.

25 Do you know what they looked like before? 07:57:26

A. My understanding is that app IDs and all Facebook user IDs -- all Facebook object IDs have always been numeric.

6 A. Yes. Facebook's user ID space has -- has
7 increased over time, and earlier on it was a
8 smaller number of digits, and now it's more.

13 A. No. The -- the format of a Facebook user
14 ID does not determine whether or not it's internal
15 or external third party. However, you could 07:58:22
16 theoretically determine broadly if an app idea is
17 old or new based on the number of digits in the ID,
18 for example.

21 A. Yes. An app ID in Facebook's TAO
22 database will have a number of fields associated
23 with it, including the app name.

HIGHLY CONFIDENTIAL

1 more accurate answer. 08:00:41

2 Q. Would the information associated with an
3 app ID in Facebook's internal records indicate when
4 an app became available to users on the platform?

5 A. So, again, the answer to that question 08:00:57
6 somewhat depends on what you mean by "became
7 available to users on the platform."

8 Again, I'm trying -- in terms of being
9 helpful, try and give you my understanding of that.

10 One of the properties of an app ID is its 08:01:11
11 mode, which at times are called development mode or
12 sandbox mode and then public mode. And one of the
13 things that is associated with an app ID is which
14 mode it is in. If an app is in development mode,
15 then only people -- users who have been given a 08:01:32
16 specific role on the application can interact with
17 the app.

18 So one way of determining whether or not
19 an app is made available to users is whether or not
20 it's in that sandbox mode. There's other ways, 08:01:48
21 too, but hopefully that provides some general
22 information.

23 Q. Is there information associated with an
24 app ID that indicates whether an app has been
25 suspended from being used on the platform? 08:02:02

Page 926

```
1           A.   If an app ID has been suspended or --                08:02:12  
2 actually, let me back up.
```

3 Can you help me understand what you mean
4 by "suspended."

5 Q. Sure. I mean it colloquially, but you 08:02:21

6 can -- is there information associated with an app

7 ID that indicates that an app has been kicked off

8 platform or whether an app has been told it has to

9 do -- make certain adjustments before it can be out

10 of sandbox mode again or any other disciplinary or 08:02:34

11 enforcement actions?

12 MR. SCHWING: Object to form.

13 THE DEPONENT: My understanding is that
14 there will be some information about whether or not
15 an app has had -- been enforced upon in some way. 08:02:53
16 Exactly which systems that -- that information is
17 stored in depends on the -- the type of enforcement
18 and when it was applied.

19 Q. (By Mr. Melamed) I guess I'm asking
20 whether there's a single table that exists -- like 08:03:10
21 what is the general information in the single
22 table, if there is one, that is associated with an
23 app ID?

| | | |
|----|--|----------|
| 24 | And I think you started to list some of | |
| 25 | those types of information. I'm just trying to | 08:03:23 |

HIGHLY CONFIDENTIAL

1 understand if there are additional types of 08:03:24
2 information.

3 A. Yes. There is a -- there is table in
4 Hive that -- and the -- that contains information
5 about a given app ID. That table has -- I want to 08:03:36
6 say it has quite a few columns.

7 I can continue to try to give you some of
8 the -- the information I think is the more -- the
9 more I understand -- that I understand to be in
10 that table. Those would typically be properties of 08:03:53
11 the ID itself as opposed to a time series, along
12 retrieval of information, which would be contained
13 in other tables.

14 Q. Would -- how do you refer to the -- I
15 just want to use the right nomenclature. 08:04:18

16 How do you refer to this primary table of
17 apps that are associated with a particular -- the
18 app ID table that we're talking about? Is there a
19 name for that table?

20 A. So the table I'm -- I'm referring to I 08:04:33
21 know as "DIM_all_apps."

22 Q. "DIM"?

23 A. DIM_all, A-L-L, _apps, A-P-P-S.

24 Q. That is a Hive table, correct?

25 A. I understand that to be a Hive table. 08:04:53

Page 928

HIGHLY CONFIDENTIAL

1 Q. Does -- and do -- when you call it -- 08:04:59
2 when you talk about this table -- well, do you ever
3 talk about this table in emails or in conversations
4 with colleagues?

5 A. It -- it's possible that people have 08:05:14
6 referred to this table in -- in emails, but...

7 Q. I don't mean -- I'm -- I'm not asking for
8 a question where asking for memory. I'm just
9 asking if there's a -- just as the -- we talked
10 about something called the method table, which is 08:05:28
11 actually a slighter longer name, is there a way
12 that you or your colleagues refer to the
13 DIM_all_apps table that is not that full name?

14 A. Not that I can think of now. Not that I
15 think of now. When you're referring to a specific 08:05:48
16 table, typically you use the name of the table.

17 Q. Does the DIM_all_apps table identify the
18 number of users who have -- Facebook users that
19 logged in to the app?

20 A. There are -- there are tables that I'm 08:06:08
21 aware of or that I recall exist that include
22 information about the app and information about the
23 usage of the app. So those -- those tables exist.

24 I -- I can't be 100 percent confident
25 whether or not that information is in the -- the 08:06:30

HIGHLY CONFIDENTIAL

1 DIM_all_apps table. 08:06:33

2 Q. Are you confident that it is in another
3 table?

4 A. I'm confident that there are tables that
5 list app IDs and the usage of those applications in 08:06:45
6 various ways over time.

7 Q. Do you know -- are any of those not in
8 the DIM_all_apps table?

9 A. The DIM_all_apps table, in my
10 understanding, refers to a specific table with a 08:07:09
11 specific set of fields, and I -- I don't recall
12 today precisely the full set of fields that that --
13 that table contains. So -- but I am aware of other
14 tables existing which include information about an
15 app and its usage. 08:07:32

16 Q. And do you recall the names of any of
17 those other tables that contain information about
18 an app and its usage?

19 A. I don't recall the name of those -- those
20 tables precisely, no, but -- but there are -- I 08:07:43
21 recall having interacted with such tables in the
22 past.

23 Q. Do you know if there exists something
24 like a pivot table that collects information
25 associated with a single app from different Hive 08:08:07

Page 930

HIGHLY CONFIDENTIAL

1 tables? 08:08:10

2 MR. SCHWING: Object to form.

3 THE DEPONENT: So Facebook's Hive

4 infrastructure, data infrastructure, allows data

5 scientists to run queries which join tables 08:08:25

6 together and -- and produce other tables, either on

7 an ad hoc basis or in order to create downstream

8 tables in Hive itself.

9 Q. (By Mr. Melamed) Do you know whether

10 data scientists have you ever queried Hive tables 08:08:45

11 so that the information about apps inclusive of app

12 ID and name and the elements that are in the

13 DIM_all_apps table are combined with information

14 about the app -- apps usage?

15 MR. SCHWING: Object to form. 08:09:09

16 THE DEPONENT: Yes, I'm aware of tables

17 that exist that combine information from

18 DIM_all_apps and other sources of information,

19 including app usage.

20 Q. (By Mr. Melamed) And what tables are you 08:09:27

21 aware of that combine that information?

22 A. Again, I -- Facebook's Hive data

23 warehouse has, you know, a large number of tables

24 in it. I -- I don't recall the specific names of

25 those tables here and now. So, you know, I'm 08:09:47

Page 931

HIGHLY CONFIDENTIAL

1 afraid -- I'm aware of those tables existing and 08:09:53
2 have -- and having had existed in the past, but
3 I -- I can't recall the specific names of those
4 tables as we sit here today.

5 Q. If we were to ask you to go back and 08:10:10
6 identify those tables, would you be able to do so?

7 A. I'm -- I'm not a data scientist, and I'm
8 today not working on the platform team directly. I
9 likely wouldn't have access to -- to the Facebook
10 Hive tables themselves. I would speak to a data 08:10:29
11 scientist on the platform team to understand what
12 was -- what was available.

13 Q. Which data scientist would you speak to?

14 A. I would start with Mark Molaro.

15 Q. How many apps are on Facebook's platform 08:10:57
16 currently, about?

17 A. Can you -- I mean, I -- the answer to
18 that question depends on a number of factors as to
19 what it means to be an app on -- on Facebook's
20 platform and whether or not it's active. Today I 08:11:19
21 don't have the precise number of apps that are
22 available on Facebook's platform.

23 Q. Is one of the pieces of information that
24 is associated with an app in any Hive table whether
25 the app is a first-party Facebook app or not? 08:11:39

HIGHLY CONFIDENTIAL

1 MR. SCHWING: Object to form. 08:11:50

2 THE DEPONENT: My understanding is that
3 there is today a determination of whether or not an
4 app ID is considered a first-party application. I
5 assume that information is stored somewhere in 08:12:05
6 Hive, but I couldn't be sure.

7 Q. (By Mr. Melamed) Do you know the time
8 period for which the method -- the information in
9 the method tables is available?

10 A. The method table goes back to 2012, in my 08:12:28
11 understanding.

12 Q. Going back to Exhibit 426, which is the
13 excerpted ten rows. I'm sorry; it's only nine rows
14 of the method table.

15 Column C is the method. 08:12:44

16 Do you see that?

17 A. I do see that.

18 Q. And that, as you described it before, is
19 the atomic element of the piece of code that is
20 used to call a particular type of information; is 08:12:54
21 that right?

22 A. A method refers to a -- a piece of code
23 in Facebook's infrastructure that's used to create
24 a response to an API request.

25 Q. Okay. So I asked you before whether 08:13:10

Page 933

HIGHLY CONFIDENTIAL

1 there was a mapping of API requests to a -- method 08:13:13
2 calls. Am I using the lingo correctly? I don't
3 mean to be confusing.

4 MR. SCHWING: Object to form.

5 THE DEPONENT: So going back to what I -- 08:13:27
6 I think I referred to earlier is when an API call
7 is made, there is a system which takes that API
8 request and determines which method is run to
9 create the API response. So that's -- that's
10 how -- that's how the system works. 08:13:48

11 Q. (By Mr. Melamed) Is that system
12 something that could be produced in this case? Is
13 that a -- is it a tool that Facebook maintains, or
14 is it a list, a table?

15 MR. SCHWING: Outside the scope of the 08:14:00
16 deposition. Object to form.

17 THE DEPONENT: So the way in which an API
18 request is received and processed is -- is code,
19 and it's my understanding it's code that runs to
20 determine which method to execute in response to an 08:14:21
21 incoming API request.

22 Q. (By Mr. Melamed) So there's no public
23 way to identify the API requests that are
24 associated with the methods that are in rows 2
25 through 10 in column C of Exhibit 426; is that 08:14:40

Page 934

HIGHLY CONFIDENTIAL

1 accurate? 08:14:44

2 MR. SCHWING: Object to form.

3 THE DEPONENT: There is -- you can read
4 some of these entries here and -- and understand
5 what the API request would have been in order to -- 08:14:55
6 to -- to hit the method.

7 Q. (By Mr. Melamed) Okay. That's helpful,
8 but it's not an answer to my question, which is --
9 if -- if plaintiffs in this case wanted an index
10 that provided API requests and cross-referenced 08:15:16
11 those API requests to the method so that we could
12 make use of the method table, is that something
13 that is -- that could -- is that even within the
14 realm of possibility as something that could be
15 produced? 08:15:35

16 MR. SCHWING: It's outside the scope of
17 the deposition. Object to form.

18 THE DEPONENT: I -- I'm not sure I'm an
19 expert in what -- what can be produced or in what
20 form that would be appropriate. If it would help 08:15:50
21 if, we could go through these and I could talk
22 through my understanding of how they map to an API
23 method, and if that would be useful, then that
24 might be help you interpret this information.

25 Q. (By Mr. Melamed) Thank you for the 08:16:07

Page 935

HIGHLY CONFIDENTIAL

1 offer. Unfortunately, these are nine rows out of 08:16:07
2 many, many, many millions and were not selected as
3 the rows that were the methods -- based on the
4 methods. They were just a selection of the first
5 nine rows of a particular document. 08:16:21

6 So we'll have to -- that's something I
7 think we will have to discuss with counsel.

8 Row -- I'm sorry. Column D has the
9 header "CNT."

10 Can you tell me what "CNT" stands for? 08:16:39

11 A. "CNT" stands for count.

12 Q. And what does "count" mean in this
13 context?

14 A. "Count" in this context means the number
15 of API requests made by that application to that 08:16:54
16 Graph API method within the given 24-hour time
17 window described by the DS column.

18 Q. So to take row 2 as an example, the first
19 four columns indicate that on -- in the 24 hour
20 time period of December 19th, 2019, an app -- an 08:17:18
21 application with the ID number in column B would --
22 made API requests corresponding to the method
23 GR:Post:page/messenger_profile 12 times; is that
24 accurate?

25 A. A caveat here is that my understanding of 08:17:46

Page 936

HIGHLY CONFIDENTIAL

1 the count column is that this what's known in 08:17:47
2 Presto as "approx count" or in Hive as "approx
3 count," and so it's -- it's a count that is
4 accurate to within a high degree of accuracy but --
5 but may not be 100 percent accurate. But it can be 08:18:06
6 assumed to be as accurate as needed.

7 Q. Assumed to be accurate as needed by whom?

8 A. In general, when -- my understanding is
9 it's -- it's accurate to within 95 percent of the
10 true value, at least, if not more. 08:18:27

11 Q. Do you know -- do you know what -- the
12 reason that it is not accurate for 100 percent of
13 the value?

14 A. My understanding that that's due to
15 computational intensity. The approx count function 08:18:50
16 in -- Presto, which is the query engine, is --
17 produces a result with -- that's highly accurate
18 with significantly less computing power.

19 Q. And then column E is users. Do you know
20 what the information reflected in that column 08:19:13
21 means?

22 A. My understanding is this refers to the
23 number of distinct user access tokens or entity
24 access tokens that were used to make the API
25 requests. 08:19:32

Page 937

HIGHLY CONFIDENTIAL

1 Q. So for row 2, those 12 requests had a 08:19:33
2 95 percent accuracy level by that one app for the
3 particular method in the 24 hours of December 19th,
4 2019, were made by a single -- on behalf of a
5 single user; is that accurate? 08:19:51

6 A. That's my understanding of what -- what
7 column B means, yes.

8 Q. Okay. If you look at Column E, row 9.
9 There are other rows that have this information,
10 too, but just for -- for purposes of this 08:20:05
11 discussion, row 9 has users as zero. And that app
12 in row 9 during the 24 hour time period on
13 December 19th, 2019, requested a particular method
14 GR:get:\search:place 480 times but did so on behalf
15 of zero users. 08:20:35

16 Do you see that?

17 A. I do see that.

18 Q. Do you know how that -- how it was zero
19 users -- how that many --

20 Let me rephrase the question. 08:20:42

21 Do you know how an API request could be
22 made, let alone made 480 times, without the user
23 having requested it?

24 A. There are --

25 Sorry. Say that again, Austin. 08:21:05

Page 938

HIGHLY CONFIDENTIAL

1 MR. SCHWING: Object to form. 08:21:07

2 You can go ahead and answer, Mr. Cross.

3 THE DEPONENT: Apps have what's called an

4 "app access token," which does not refer to a

5 particular user's authenticated session, and my 08:21:16

6 understanding is that it's likely that those calls

7 were made with an app access token, not a user

8 access token. I can't 100 percent of that, because

9 I'd need to fully understand the lineage of the

10 data systems, but that's -- that's my understanding 08:21:36

11 of -- of how you would have API requests in here

12 without them being ascribed to a number of users.

13 Q. (By Mr. Melamed) And then column F --

14 and we can refer to return to row 2 for this -- is

15 the -- the header of column F is "CNT_successful." 08:21:56

16 Do you know what that stands for?

17 A. That -- that refers to count successful.

18 Q. And what does count successful mean in

19 this context?

20 A. My understanding is that refers to 08:22:12

21 whether or not the API -- the Graph API

22 infrastructure considered the request by the

23 third-party app to be a successful request.

24 Q. What makes a successful request?

25 Let me rephrase that. 08:22:27

Page 939

HIGHLY CONFIDENTIAL

1 What does it mean in context of this 08:22:32
2 spreadsheet to call a request successful?

3 A. My understanding is it means that the app
4 made a well-formed request and that the API
5 returned a response or was able to return a 08:22:49
6 response -- a response to that request.

7 Q. Is it possible to return a response that
8 does not provide information in response to a
9 request?

10 Actually, let me -- do you understand 08:23:03
11 what I'm asking with that question? I'm sorry.
12 This is --

13 MR. SCHWING: The question is vague.

14 MR. MELAMED: Yeah. So --

15 MR. SCHWING: If you do know what he 08:23:13
16 means, go ahead. But I don't -- it seems to me
17 there was uncertainty.

18 MR. MELAMED: I know what I intend to
19 mean. I'm not sure I communicated it to you,
20 Simon -- or Mr. Cross. I'm sorry. 08:23:22

21 Q. (By Mr. Melamed) So if you're able to
22 answer, just state what you think -- the question
23 you think you're answering and I'll help to
24 clarify.

25 If you're not able to answer, I'm happy 08:23:31

HIGHLY CONFIDENTIAL

1 to clarify. 08:23:33

2 MR. SCHWING: Yeah, I'm going to restate
3 the objection that it's vague.

4 THE DEPONENT: What I think you mean is
5 is it possible for the API to -- to return 08:23:52
6 successful -- to -- for the API request to be
7 considered successful but return no information?

8 Is that -- is what you're asking? If so --

9 Q. (By Mr. Melamed) Yes. Let's -- let's
10 say -- let's put a different example on here. 08:24:07

11 Let's say there was an API call made for
12 your friend's religious and political preferences,
13 and that API call was well formed, and so it
14 reflects in this method table in the counts and the
15 users. And would that -- but you had not provided 08:24:27
16 access to that information to the app.

17 Would that return has -- be indicated in
18 the CNT successful as a successful query for that
19 information?

20 MR. SCHWING: Vague. Incomplete 08:24:46
21 hypothetical.

22 THE DEPONENT: Yeah, again, the -- a full
23 answer here like -- might require some -- some --
24 some digging in exactly how these data pipelines
25 work. 08:25:07

Page 941

HIGHLY CONFIDENTIAL

1 So -- but -- but my understanding is that 08:25:07
2 the API would return a successful response even if
3 there was no information returned based on the
4 permissions and your privacy settings. As far as
5 the API concerned, it was a lawful request and it 08:25:28
6 was able to provide a response, but that response
7 being empty because of permission checks not
8 passing would be considered a successful request
9 even in -- in the case of empty response.

10 Q. (By Mr. Melamed) Thank you. That's 08:25:48
11 helpful.

12 Is there any other information other than
13 these columns reflected in the method table?

14 A. My understanding is -- is this is
15 representative of what is stored in -- in the 08:26:03
16 method table.

17 MR. SCHWING: We've been going about an
18 hour.

19 MR. MELAMED: We can go off the record
20 and take a break. 08:26:17

21 THE VIDEOGRAPHER: Okay. We're off the
22 record. It's 8:26 p.m.

23 (Recess taken.)

24 THE VIDEOGRAPHER: We're back on the
25 record. It's 8:50 p.m. 08:50:30

HIGHLY CONFIDENTIAL

1 Q. (By Mr. Melamed) Mr. Cross, are you 08:50:32

2 familiar with the capabilities tool?

3 A. I am familiar with the capabilities tool.

4 Q. What is the capabilities tool?

5 A. The capabilities tool is an internal tool 08:50:44

6 available to Facebook employees which is used to

7 manage capabilities and which apps have access to

8 them.

9 Q. What does it mean to have access to a
10 capability? 08:51:05

11 A. Excuse me. It means that when an app ID,

12 a specific -- which represents a specific Facebook

13 application has been granted a capability, then

14 that app will experience some form of modified API

15 behavior, which depends on the capability that's 08:51:29

16 being granted.

17 Q. Is it accurate to say that the capability

18 is something that is not generally available to all

19 platform apps?

20 A. Typically capabilities refer to behavior 08:51:46

21 which would not be default available to -- to a

22 Facebook application.

23 Q. Now, are there circumstances where -- let

24 me withdraw and try of think of another way of

25 saying it. 08:52:10

Page 943

HIGHLY CONFIDENTIAL

1 And are you familiar with the 08:52:16
2 capabilities tool as it used at Facebook?

3 A. I am familiar with the capabilities tool
4 and how it's used at Facebook.

5 Q. When was the capabilities tool instituted 08:52:28
6 as -- as such?

7 Sorry for the poorly phrased question.
8 Let me restate that.

9 When did Facebook start using the
10 capabilities tool? 08:52:41

11 A. My understanding is the capabilities tool
12 began to be used in around late 2012 and early 2013
13 or certainly in 2013.

14 Q. Did Facebook have any way of tracking
15 capabilities prior to the time period when the 08:52:57
16 capability tool was used?

17 A. Before the capability tool existed, there
18 was another tool which managed some API whitelists,
19 and that was used to determine which apps had
20 access to which capabilities. 08:53:30

21 Q. And what the name of that tool?

22 A. My understanding is that tool was called
23 Pearly Gates.

24 Q. P-E-A-R-L-Y Gates?

25 A. P-E-A-R-L-Y, Gates, G-A-T-E-S. 08:53:46

Page 944

HIGHLY CONFIDENTIAL

1 Q. Do you know if Facebook still has the 08:53:51
2 records that were reflected in Pearly Gates or has
3 the tool?

4 A. My understanding is that that tool was
5 replaced by the capability tool. I'm -- I'm not 08:54:04
6 aware as -- whether or not Facebook retains records
7 from -- from that previous tool.

8 (Exhibit 427 was marked for
9 identification by the court reporter and is
10 attached hereto.) 08:54:14

11 MR. MELAMED: So I've marked what's
12 been -- or I've introduced what's been marked as
13 Exhibit 427. You're going to see that the
14 Exhibit Share is unable to preview the file, and
15 I'm happy to share my screen to show it. 08:54:30

16 Q. (By Mr. Melamed) It is Facebook -- I'm
17 sorry. The Bates number is FB-CA-MDL-02936298.tsv.
18 I'll note that the version you're looking at on my
19 screen says "(2)" because I had downloaded it
20 earlier, and I'll state for the record that I 08:55:00
21 haven't made any changes to this other than to wrap
22 text and expand the columns so that we can see
23 them.

24 I'll also state for the record that this,
25 like the method tool spreadsheet we were looking at 08:55:17

HIGHLY CONFIDENTIAL

1 before, is an excerpt of a much larger document, so 08:55:19
2 this is only ten rows, so the column header and
3 then nine entries. And I just want to do something
4 similar to what we just did with the method tool.

5 MR. SCHWING: And, Matt, just so I'm 08:55:33
6 clear -- I appreciate that description. So this
7 is -- there was a larger spreadsheet, and this is
8 just the first ten rows of that spreadsheet? You
9 didn't change the ordering?

10 THE DEPONENT: Correct. I -- that is my 08:55:46
11 understanding. I'm sorry if we did, but I did not
12 intend to change any ordering. It's intended to
13 just reflect --

14 MR. SCHWING: Okay.

15 MR. MELAMED: -- these -- the column 08:55:57
16 header and then nine -- I think the first nine
17 rows.

18 Q. (By Mr. Melamed) Mr. Cross, have you
19 seen -- are you familiar with the content reflected
20 in this excerpt? 08:56:09

21 A. I -- it looks similar to something I've
22 reviewed previously. I'm familiar -- I'm familiar
23 with -- with the content, I think, yes.

24 Q. So counsel has previously identified this
25 to us as the log table from the capabilities tool. 08:56:40

HIGHLY CONFIDENTIAL

1 Does -- have you heard the phrase "log table" as -- 08:56:44
2 in this context, in the context of the capabilities
3 tool?

4 A. Yes, I've heard the phrase "log table" in
5 the context of the capabilities tool. 08:56:52

6 Q. And what is the log table?

7 A. My understanding is that the log table
8 stores a list of changes that have been made to the
9 capability tool or to the information within the
10 capabilities tool over time. 08:57:13

11 Q. Are those changes to the capabilities
12 themselves?

13 A. So it would -- depends on what you mean
14 by "to the capabilities." Can you be more
15 specific? 08:57:33

16 Q. Let me rephrase the question.
17 What are the changes that are reflected
18 in this tool?

19 A. So my understanding is there's a --
20 there's a range of changes that are reflected in 08:57:48
21 this table, including changes to which app has
22 access to a capability, whether or not that
23 capability -- a given capability is linked to a
24 capability group, whether or not an app is linked
25 to a capability group, and changes to metadata 08:58:14

Page 947

HIGHLY CONFIDENTIAL

1 about capabilities as stored in the capability 08:58:19
2 tool.

3 Q. If you look at column A, you see it is --
4 has the header "ID"?

5 A. Yeah. 08:58:31

6 Q. Do you know what that ID number pertains
7 to? What is it identifying?

8 A. My understanding is that -- sorry. My
9 understanding is that refers to the ID of a log
10 entry in the capability log table. 08:58:45

11 Q. And what -- do you know what that ID is
12 associated with?

13 A. My understanding --

14 Q. It -- go ahead. I'm sorry.

15 A. My understanding is it's just the ID of 08:59:00
16 the log entry. Every time a new log entry is
17 added, a new ID is created.

18 Q. And when you say "a new log entry," are
19 you referring to a log entry in this table?

20 MR. MELAMED: Mr. Garrie, your audio is 08:59:21
21 on.

22 If that happens again, we can go off the
23 record really quickly.

24 Q. (By Mr. Melamed) Is the ID something
25 that is ascribed to -- is there a new idea ascribed 08:59:45

Page 948

HIGHLY CONFIDENTIAL

1 to each change in this log? 08:59:49

2 A. My understanding is every entry added to
3 the log is given to a new idea that uniquely
4 represents that change event.

5 Q. And the ID -- your understanding is the 09:00:05
6 ID is not associated with a capability; is that
7 correct?

8 A. That's correct. My understanding is ID
9 refers to a -- to an entry in the log.

10 Q. So just to make sure I understand, if we 09:00:21
11 had the entirety of the log here and it was however
12 many rows, there should be that many ID numbers,
13 i.e., one for each row?

14 A. That's my understanding of -- of what ID
15 mean in this context, yes. 09:00:38

16 Q. Okay. And what does app -- if you look
17 at column B, it says "app ID."

18 Do you know what that means in the
19 context?

20 A. My understanding is that that means where 09:00:50
21 the change that is logged is -- is specific to an
22 app in some way, then the app ID will be reflected
23 in that column.

24 Q. And what do you mean by "specific to an
25 app in some way"? 09:01:02

Page 949

Page 950

HIGHLY CONFIDENTIAL

1 Q. Would -- do you know if app ID would ever 09:02:49
2 be indicated as applying to more than one app ID?
3 For instance, could there be an entry in the app ID
4 column had ten IDs in it if a log change affected
5 those ten app IDs? 09:03:05

6 A. My understanding is that the log would
7 only -- that column would only ever include one app
8 ID.

9 Q. Column C says "notes."
10 Do you see that? 09:03:22

11 A. I do see that.

12 Q. Do you know what those notes describe?

13 A. Those notes describe different things,
14 depending on the action that the row represents.
15 So the -- the notes are indicative of the action -- 09:03:37
16 a human-readable version of -- of the action that
17 was taken and logged inside the table.

18 Q. And who, as a general matter, by the
19 group of people, not the individuals, but who was
20 responsible for filling in the notes? 09:04:02

21 A. My understanding is that the notes are
22 auto-generated by the capability tool when a change
23 is made. Therefore, the engineer or engineers
24 responsible for the capability tool are responsible
25 for the content of the note. 09:04:21

Page 951

HIGHLY CONFIDENTIAL

1 Q. The human-readable content is 09:04:25
2 automatically generated?

3 A. Yes, that's my understanding. The -- the
4 notes field explains what's happening based on the
5 information and changes that are happening to the 09:04:40
6 capability tool at the time.

7 Q. And column D says "cap_name."
8 Do you know what that is?

9 A. Cap_name refers to the name of the
10 capability. 09:04:57

11 Q. And column E is "group_name."
12 Do you know what the "group_name" means?

13 A. Yes. The capability tool at one time had
14 the facility for groups of capabilities and apps to
15 be stored, so this would allow a group of 09:05:28
16 capabilities to be granted to -- a set -- sorry --
17 a set of capabilities to be granted to a set of
18 applications via the group.

19 Q. You said, "at one time." Are groups --
20 groups of capabilities no longer -- let me 09:05:54
21 rephrase.

22 Does Facebook continue to group
23 capabilities together like this?

24 A. My understanding is that the tool has
25 moved to exclusively map capabilities directly to 09:06:08

HIGHLY CONFIDENTIAL

1 applications and applications directly to 09:06:12

2 capability.

3 Q. Do you know when that change was made?

4 A. I don't know specifically when that

5 change was made. It's likely that that was a -- a 09:06:26

6 changeover period of time as the migration took

7 place. I think it was in the last like two or

8 three years or so.

9 Q. So I'm sorry. Just to be clear, that

10 migration from groups of capabilities or from where 09:06:47

11 groups of capabilities were possible to an

12 individualized mapping of a single capability to a

13 single app happened over the last few years; is

14 that right?

15 A. I'm not sure how long it took to 09:07:07

16 transition from having capabilities app to apps via

17 groups to the direct mapping. I'm not sure how

18 long the transition period took. My understanding

19 is that that transition took place sometime in the

20 last two or three years. 09:07:22

21 Q. So do you know the reason that Facebook
22 initiated that transition?

23 A. My understanding is it was much simpler

24 to understand which apps had access to which

25 capabilities as a result of the direct mapping. 09:07:41

Page 953

HIGHLY CONFIDENTIAL

1 Q. So it was more difficult to understand 09:07:50
2 which apps had access to which capabilities when
3 capabilities could be grouped together; is that
4 correct?

5 A. The -- 09:08:03

6 MR. MELAMED: Sorry.

7 MR. SCHWING: Object to form.

8 But go ahead, if you can answer.

9 THE DEPONENT: My understanding is that
10 by having an intermediary group, additional 09:08:14
11 processing is required to -- to understand which
12 apps had access to a capability at a given time.

13 Q. (By Mr. Melamed) When capabilities were
14 grouped during that time period, was it possible to
15 identify each app that had access to each 09:08:34
16 individual capability?

17 A. Yes, at -- at -- exactly how that's
18 represented in the logs, yes. In order for
19 capabilities to function, it was possible for --
20 the system to know whether or not a given app had 09:09:00
21 access to a given capability.

22 Q. Was it possible for employees at Facebook
23 to determine which apps had access to which
24 specific capabilities during the time when
25 capabilities were -- could be grouped? 09:09:19

Page 954

HIGHLY CONFIDENTIAL

1 A. Yes, I do. 09:11:17

2 Q. And then there are what looks like
3 numeric entries in the cells under column F,
4 correct?

5 A. That's correct. 09:11:30

6 Q. What do those numbers represents?

7 A. My understanding is that those refer to
8 the Facebook ID of the employee who initiated the
9 change in the log.

10 Q. Does Facebook maintain a separate table 09:11:53
11 that identifies the employee IDs associated with
12 the employee name?

13 A. Facebook would have a way of knowing for
14 a given employee ID who that referred to.

15 Q. Do you see column G is time-stamped? I'm 09:12:25
16 going to scroll over just a few so you can see the
17 remainder for context.

18 Do you see column G has time stamp -- as
19 having time stamped?

20 A. I do see that. 09:12:35

21 Q. What is the information reflected in
22 column G in the time stamp column?

23 A. My understanding is that this refers to
24 the time in PST, so Pacific time, that the action
25 reflected in the log took place. 09:12:55

Page 956

HIGHLY CONFIDENTIAL

1 Q. Do you see anything in this log -- and 09:13:02
2 I'm happy to scroll back; just ask me to do so --
3 that reflects the date on which any of these
4 actions took place?

5 A. Column G includes the date and time. 09:13:13

6 Q. Okay. Can you explain how -- let's look
7 at row 2. I just don't understand.

8 What date and time is reflected by
9 23:51.0?

10 A. So that's -- my understanding is that's 09:13:32
11 an Excel date and time for my team bug. If you
12 look at the raw value of the cell, further up,
13 you'll see the "un-Excelified" version.

14 Q. You're looking in the -- where I've just
15 highlighted in the -- in the field next to the 09:13:50
16 function?

17 A. That's correct.

18 Q. So the first one was January 7th, 2015,
19 at 12:23:51 p.m. That's -- all I've done is
20 highlighted this cell. 09:14:13

21 A. Sorry. Yes. My understanding is that
22 that refers to 7th of January 2015 at 12:23:51 p.m.
23 Pacific time.

24 Q. Column H has the header "action type."
25 Do you see that? 09:14:33

HIGHLY CONFIDENTIAL

1 A. I do. 09:14:34

2 Q. What does action type reflect?

3 A. My understanding is that there's a list
4 of loggable events, each of which is identified by
5 an action type number, and that refers to the 09:14:50
6 specific action that was performed and logged at
7 this time.

8 Q. Do you know how many action types there
9 are?

10 A. I think there's at least 36. In other 09:15:11
11 words -- I assume there was at least 36. I don't
12 know the full -- the full number, I'm afraid, of
13 exactly of -- exactly which action types consist.

14 Q. Do you know if the numbering of action
15 types is sequential? 09:15:32

16 A. My understanding of it that it is
17 enumerated, but there may be missing -- missing
18 action types where the engineer created one but
19 didn't go on to subsequently use it, for example.

20 MR. MELAMED: I'll state for the record 09:16:03
21 that counsel has given us at least a partial list
22 of action types, so I'll just -- we'll go back if
23 we need to.

24 Q. (By Mr. Melamed) Column I -- I'm
25 sorry -- is the task ID. "Task_ID." 09:16:16

Page 958

HIGHLY CONFIDENTIAL

1 Can you tell me what "task_ID" stands 09:16:22

2 for?

3 A. "Task_ID" refers to the ID number for a
4 task in Facebook's internal task management system.

5 Q. If you wanted to look up a task based on 09:16:39
6 a task number in the internal system, could you do
7 so?

8 A. I could attempt to do so, but whether or
9 not I would be able to see the contents of the task
10 would depend on internal privacy and accessible 09:16:53
11 rules.

12 Q. Are all of the tasks in the internal task
13 system retained?

14 A. I don't know for certain whether or not
15 they are retained forever, no. 09:17:10

16 Q. Do you know whether all of the tasks that
17 are reflected in this worksheet, which is the log
18 table and the capabilities tool, have been
19 retained?

20 A. Again, I'm not aware of the specific data 09:17:33
21 retention mechanisms for task IDs in -- and tasks
22 in the task tool.

23 Q. Are you familiar with how to search in
24 the tax -- I'm sorry -- tasks tool?

25 A. I am familiar of how to look up tasks by 09:17:53

Page 959

HIGHLY CONFIDENTIAL

1 task ID. 09:17:57

2 Q. Can you look up more than one task at a
3 time? For instance, can you enter a series of task
4 IDs and query to see whether each of those exist at
5 the same time? 09:18:11

6 MR. SCHWING: Object to form.

7 THE DEPONENT: The task tool has a -- has
8 a way of searching by several dimensions. I think
9 it's possible to search for multiple task IDs at
10 the same time, but the -- the precise number of 09:18:28
11 task IDs that that search system would accept is --
12 is not something I'm aware of.

13 Q. (By Mr. Melamed) Column J is the
14 API_XFN_submission_ID.

15 Can you tell me what that header 09:18:51
16 references?

17 A. So today Facebook has a process called
18 "API_XFN," which exists to manage which APIs exist
19 and which capabilities exist and who -- which apps
20 have access to those capabilities. 09:19:15

21 My understanding is that that column
22 reaches an ID in the API XFN tool.

23 Q. What information is reflect in the API
24 XFN process or tool that is not reflected in the
25 capabilities tool, if anything? 09:19:41

Page 960

A. So the capabilities tool exists today to manage and display which apps have access to which capability. The API XFN process exists to govern the process by which capabilities are granted to applications, and the tool would therefore reflect the -- the information as to why a capability existed or a capability was granted to a specific application.

9 Q. What form does the API XFN tool exist in?

| | | |
|----|---|----------|
| 10 | A. My understanding is that the API XFN | 09:20:34 |
| 11 | process uses an internal tool called | |
| 12 | Launch Manager. | |

13 Q. Do you know when Launch Manager first
14 started being used?

```
15      A.   Sorry.  Launch Manager started being used      09:21:01
16      in -- in which context?
```

17 Q. Let -- let me back up and ask a predicate
18 question.

```

19             Is Launch -- is Launch Manager used for
20 anything other than the process by which                                09:21:17
21 capabilities are granted to application and
22 information as to why a capability existed or was
23 granted for a particular application?

```

| | | |
|----|--|----------|
| 24 | A. The Launch Manager tool is used | |
| 25 | internally at Facebook to operationalize the | 09:21:40 |

HIGHLY CONFIDENTIAL

1 companywide privacy XFN process. 09:21:42

2 Q. The Launch Manager tool is used for more
3 than -- is the -- is reflected in this log; is that
4 right?

5 A. The Launch Manager tool is -- is used in 09:22:05
6 internally to manage Facebook's -- the companywide
7 privacy XFN process and then it's also used to
8 manage the API XFN process.

9 Q. In what form does that tool exist? Is it
10 a database that is accessed by internal employees 09:22:27
11 or spreadsheets? Something else?

12 A. It's -- it's a website that's available
13 to Facebook employees.

14 Q. And is it backed up by a database? Is it
15 a website interface to a database? 09:22:43

16 A. I'm not an expert in how the -- the tool
17 is structured, but from -- from my experience in
18 these matters, the -- yes, the -- the -- the
19 website would be a front-end onto some form of
20 database. 09:23:02

21 Q. Do you know whether reports can be
22 generated from the website?

23 A. I don't know exactly what is -- what is
24 possible to be generated by the -- the
25 Launch Manager tool. It's likely the view that I 09:23:24

Page 962

HIGHLY CONFIDENTIAL

1 have as -- as a product manager differs from the 09:23:27
2 views that other employees have.

3 Q. How long has the Launch Manager been used
4 at Facebook?

5 A. I'm not -- the Launch Manager tool is -- 09:23:47
6 is something that's existed for several years. I'm
7 not confident in the -- in the -- in the date from
8 which it first started being used internally, but
9 it's been a tool that's been in use for several
10 years. 09:24:03

11 Q. Is it a tool that is still in use?

12 A. Yes, the Launch Manager tool is -- is
13 still in use.

14 Q. You see column K identifies the
15 developer_user_user ID? 09:24:25

16 A. I see that.

17 Q. Do you know what information was
18 reflected when that column was filled in?

19 A. I'm not actually sure what that column
20 exists to -- to track, I'm afraid. 09:24:44

21 Q. The -- so the information counsel
22 provided to us, that field is described as saying
23 "it's the ID of the application developer (internal
24 to or outside of Facebook) that performed the
25 action." 09:25:08

HIGHLY CONFIDENTIAL

1 Do you have any reason to doubt that 09:25:09
2 description of what's contained in this -- of what
3 would be contained in this column if it were
4 recorded?

5 A. I have no reason to doubt to -- to doubt 09:25:19
6 that description.

7 Q. The description says it's the application
8 developer that performed the action. And I'm
9 excerpting there.

10 But do you know what is meant by 09:25:34
11 "performed the action" in that context?

12 A. I'm not entirely sure exactly what --
13 what it means by "performed the action" in this
14 context.

15 (Exhibit 428 was marked for 09:25:48
16 identification by the court reporter and is
17 attached hereto.)

18 MR. MELAMED: I have introduced what's
19 been marked as Exhibit 428. This one you should be
20 able to open in your Exhibit Share, but I will 09:26:45
21 share my screen in a second.

22 While you're pulling it up, Exhibit 428
23 is, again, an excerpt of this spreadsheet provided
24 by Facebook at FB-CA-MDL-02936296.

25 Q. (By Mr. Melamed) And we went through the 09:27:17

HIGHLY CONFIDENTIAL

1 same process here. It's not a -- you know, it's a 09:27:18
2 fairly random selection of the first several rows
3 just so we can discuss the information that's
4 provided on this spreadsheet.

5 And for ease of legibility, I'm going to 09:27:29
6 stretch the columns out a little bit and share my
7 screen.

8 While I'm doing this, have -- are you
9 familiar with this document, Mr. Cross?

10 A. I am familiar with this document. 09:27:47

11 Q. And you reviewed this in preparation for
12 testifying today?

13 A. I did.

14 Q. What does this document reflect? What is
15 your understanding of the information that this 09:27:59
16 document reflects?

17 A. My understanding is that this document
18 reflects when -- an application ID and the
19 capability and when the app was initially granted
20 access to that capability and when the app lost 09:28:21
21 access to that capability.

22 Q. And do you know if this is a historical
23 record?

24 MR. SCHWING: Object to form.

25 Q. (By Mr. Melamed) I can clarify if you 09:28:44

Page 965

HIGHLY CONFIDENTIAL

1 need me to. 09:28:45

2 What I'm asking is do you know if this
3 reflect the -- the -- when apps were granted
4 capabilities and when they lost capabilities from
5 the onset of the time the capabilities tool was 09:29:00
6 used?

7 A. Sorry. Excuse me.

8 My -- my understanding is that this
9 reflects when an app got access to a specific
10 capability via the capabilities tool and when the 09:29:23
11 app lost access -- access to that capability by the
12 capability tool.

13 Q. And it's your understanding that it
14 includes that information from -- for the entirety
15 of the time the capabilities tool was in use? 09:29:39

16 A. This -- this excerpt I'm seeing doesn't,
17 but the -- the original document -- I don't want
18 to -- determine what it was -- exactly how it was
19 produced and what the limits of that -- of that --
20 of that file are. That would depend on when it was 09:30:08
21 produced, you see, and what data was available at
22 the time it was produced.

23 Q. I can tell you I understand why you're
24 saying that. I don't mean to be tricking you here.

25 I can tell you it was produced several 09:30:26

Page 966

HIGHLY CONFIDENTIAL

1 months ago. I can't -- I'm not sure of the exact 09:30:30
2 date, but I believe it was in April of this year,
3 and that the -- the term -- that the file itself
4 was voluminous, so large that it made it either
5 impossible or wholly impracticable to open on 09:30:44
6 the -- on an individual's computer.

7 I don't know if that helps clarify your
8 answer, but I -- I -- if it does, please let me
9 know. If not, you know, I'm happy to ask that
10 question after you had to time to review the 09:31:01
11 document as it was produced.

12 A. My assumption is if it's a large document
13 that it -- that it would be -- it would go back
14 in -- in time a long way, but exactly whether or
15 not that captures the -- the -- the full extent of 09:31:25
16 the capability tool being in use, it likely depends
17 on when the -- the logging for the capability tool
18 was -- was added.

19 Q. So let's go through the same exercise
20 with this spreadsheet. 09:31:45

21 There are -- it looks like columns A
22 through K in this spreadsheet. And, again, this is
23 an excerpt of the column header and the first nine
24 rows below that column header.

25 Column A is tabled "ID." 09:32:01

HIGHLY CONFIDENTIAL

1 Do you know what "ID" means in this 09:32:03
2 context?

3 A. My understanding is that that refers to
4 a -- an ID in the capability tool login table.

5 Q. And the next -- each of these -- I'm 09:32:27
6 sorry. For instance, row 2, 145330, would reflect
7 an ID in the capability tool login table? I could
8 go to that login table and look up this ID and --
9 and be taken to a row; is that correct?

10 A. That's -- that's my understanding. 09:32:48

11 Q. Before we go on, is this the way that --
12 is this the -- what Facebook employees see when
13 they use the capability -- capabilities tool
14 internally?

15 A. No. When Facebook employees use the 09:33:09
16 capability tool, they're using a website
17 internally, which displays information.

18 Q. So they're not seeing -- seeing Excel
19 spreadsheets of the information; is that -- they
20 see something different? 09:33:29

21 A. When employees are using the capability
22 tool, they're -- they're -- they're generally using
23 a website which includes a bunch of information,
24 sometimes in tabular form, sometimes in other form.
25 Typically the employees would -- wouldn't use an 09:33:47

Page 968

HIGHLY CONFIDENTIAL

1 Excel spreadsheet. 09:33:50

2 Q. For column B, it's "FBID," and then it's
3 a numeric entry.

4 Do you know what that numeric entry
5 reflects? 09:34:08

6 A. That numeric entry refers to an ID in
7 Facebook's Graph database.

8 Q. What does the ID in Facebook's Graph
9 database refer to -- what kind of information is
10 that ID'ing? 09:34:30

11 A. I don't have access to -- to -- to
12 exactly what that information is due to Facebook's
13 internal privacy rules.

14 Q. Do you know the type of information it
15 would be identifying? 09:34:43

16 A. I'm not sure of the type of information
17 that's been identified. Potentially maybe an
18 explanation of that has already been provided as --
19 as part of the Facebook's responses.

20 Q. Column has "app_ID."
21 Do you know what the information is in
22 app_ID?

23 A. Yes. That refers to the FBID, or
24 Facebook ID, of a Facebook application. We
25 previously talked about this earlier in the 09:35:33

Page 969

HIGHLY CONFIDENTIAL

1 deposition. 09:35:35

2 Q. And column D reflects "a capability_ID."

3 Do you know what that information is?

4 A. That refers to an ID which represents a

5 specific capability within the capability tool. 09:35:52

6 Q. And column E is "capability_FBID." It's

7 a longer numeric entry.

8 Do you know what the capability_FBID is?

9 A. That will be the FBID of a specific

10 capability as referenced in Facebook's Graph 09:36:16

11 database.

12 I'm sorry. Let -- let me clarify that.

13 I'll use different terms.

14 "FBID" is -- we talked about this earlier

15 in terms of Facebook's ID schemes. 09:36:33

16 When you see "FBID," that refers to an ID

17 in Facebook's databases as fronted by TAO.

18 Q. Is there any relationship between the

19 information in the capability_ID and the

20 capability_FBID? 09:36:54

21 A. My understanding is that one is the ID

22 of -- of the capability app stored in TAO and the

23 other is the ID of the capability as stored in the

24 capability tool. For a given capability, those two

25 values should be the same. 09:37:13

Page 970

HIGHLY CONFIDENTIAL

1 Sorry. Not the same value. For a given 09:37:16
2 capability, they will always have the same
3 capability ID and always have the same capability
4 FBID.

5 Q. There should be a one-to-one correlation 09:37:29
6 where each capability ID has one capability FBID
7 and each is associated only with that other
8 specific corollary; is that correct?

9 A. That's my understanding of how those two
10 fields work, yes. 09:37:45

11 Q. Column F is "start_request_ID," and then
12 it's a numeric entry.

13 Do you know what "start_request_ID" is?

14 A. My understanding is that that refers to
15 an ID in the capability tool log. That -- that 09:38:04
16 refers to when the capability was granted to the
17 application.

18 Q. That number indicates a time. It is
19 associated with an entry in another log that
20 indicates a time? 09:38:33

21 A. That number, as I understand it,
22 indicates a -- a row in a log table, and that row
23 may contain time information.

24 Q. I'm just trying to understand your
25 testimony about what this column -- the information 09:38:54

Page 971

HIGHLY CONFIDENTIAL

1 in this column. 09:38:57

2 You said it refers to when the capability
3 was granted to the application, and -- and by
4 "when," do you mean the -- the date and time the
5 capability was granted to the application? 09:39:10

6 A. Sorry. Let me -- let me reframe.

7 My understanding is that number refers to
8 a ID of a log entry in the capability tool log,
9 logging table, that -- that will contain
10 information about the -- that will refer to a log 09:39:34
11 entry that's indicative of when the capability was
12 granted to that application.

13 Q. It's a cross-reference to another source
14 that identifies the time when that capability was
15 granted? 09:39:55

16 A. That's my understanding. It's a
17 cross-reference to a -- a logging entry.

18 Q. Column G is "start time," and it appears
19 to include a date and time.

20 Do you know what start time with a date 09:40:08
21 and time and start time reflect?

22 A. My understanding is that it means the
23 date and time when the capability was granted to
24 the application.

25 Q. Is that information any different than 09:40:26

Page 972

HIGHLY CONFIDENTIAL

1 the information that is cross-referenced by the 09:40:29
2 number in column F?

3 A. I can't say for certain without knowing
4 the query which produced this table. My
5 understanding, though, is that that represents the 09:40:46
6 date time in which the capability was first granted
7 to the application.

8 Q. You referenced the query that created
9 this table. Do you know if this table was created
10 for purposes of production in this case? 09:40:59

11 A. I'm not -- I don't know how this table
12 was -- was created and under what -- what
13 circumstances.

14 Q. And I know you don't have the full table
15 in front of you, but is it your understanding that 09:41:28
16 the full -- so file at 02936296 contains all of the
17 information that is in the capabilities grants
18 table?

19 MR. SCHWING: Object to form.

20 THE DEPONENT: Sorry. What do you mean 09:41:56
21 by "the capabilities grant table"?

22 Q. (By Mr. Melamed) Thank you. That's a --
23 that's a good clarifying question.

24 Counsel has reflected in communications
25 to plaintiffs that this file is the capabilities 09:42:07

Page 973

HIGHLY CONFIDENTIAL

1 grants table. 09:42:09

2 Is that -- do you understand this to
3 reflect a different -- to reflect a different type
4 of information?

5 MR. SCHWING: Object to form. 09:42:25

6 THE DEPONENT: So my understanding is
7 that this -- this table reflects the capability app
8 pairs and when they were granted to -- to
9 third-party applications.

10 Q. (By Mr. Melamed) Is it your 09:42:49
11 understanding that -- or let me withdraw that.

12 Do you have any understanding whether the
13 full Excel spreadsheet that was produced to
14 plaintiffs reflects all capability app pairs and
15 when they were granted to third-party applications 09:43:04
16 that exist within the capabilities tool?

17 A. My understanding is that -- is that that
18 table contains the -- the full list of -- of
19 capability app pairs as stored in the capabilities
20 tool. 09:43:26

21 Q. Heading to columns -- columns H is N --
22 the header on the column is "N_request_ID," and it
23 has a numeric entry.

24 Do you know what that numeric entry
25 reflects? 09:43:47

Page 974

1 A. My understanding is it's similar to the 09:43:52
2 start request ID, and it refers to a log entry
3 where that log entry is indicative of the
4 capability being removed from the application.

5 Q. And column I is "end_time," and the 09:44:13

6 entries appear to be a -- a date and time.

```
7 |         Do you understand what that date and time
8 |         reflects?
```

| | | |
|----|--|----------|
| 9 | A. I understand that that date and time | |
| 10 | reflects the -- the -- the date and time as when | 09:44:29 |
| 11 | the capability was removed from the given | |
| 12 | application. | |

13 Q. And so if there is no end request ID and
14 end request time such as in row 4, does that
15 indicate that the capability is still available to 09:44:52
16 that application?

17 A. My understanding is that that means that
18 there is no data available as to that app having
19 access to that capability -- sorry -- that there is
20 no data available as to if the capability has been 09:45:17
21 removed from the given application and therefore
22 likely indicative that the app still has access to
23 the capability at the time the data was pulled.

| | | |
|----|---|----------|
| 24 | Q. Column J has the header "expiration_time" | |
| 25 | and -- well, where there is an entry, it reflects | 09:45:37 |

HIGHLY CONFIDENTIAL

1 what appears to be a date and time. 09:45:44

2 Do you know what expiration time means in
3 this context, what information is reflected in the
4 expiration time in the column?

5 A. My understanding is that today when 09:46:00
6 capabilities are granted to applications, they by
7 default automatically expire after a given time
8 period, and this would indicate when the capability
9 will be automatically removed from the application
10 unless some action is taken. 09:46:25

11 Q. If there is a blank entry -- so, for
12 instance, in row 4 -- does that indicate that there
13 is no expiration date and time for that app
14 capability pairing?

15 A. I can't be 100 percent certain as -- as 09:46:47
16 to exactly what the absence of expiration time
17 means. It's possible, for example, that the tool
18 will -- will automatically remove the capability
19 sometime after it was granted even if there was no
20 information in the expiration time column. 09:47:07

21 Q. Do you know that the tool will remove
22 access to the capability for an app if there is no
23 entry in the expiration_time column?

24 A. I'm -- I'm not aware of the specific and
25 complete behavior of how that works. My 09:47:32

Page 976

HIGHLY CONFIDENTIAL

1 understanding is that today if an application is 09:47:36
2 granted the capability, that will -- the capability
3 will automatically be removed sometime later unless
4 someone at Facebook takes an action to a unit.

5 Q. You said "today," the circumstances that 09:47:57
6 exists today is that if an application is granted a
7 capability, the capability will automatically be
8 removed sometime later.

9 Was there was a time in the past when a
10 capability was not necessarily automatically 09:48:11
11 removed in this context to an app?

12 A. Earlier in the history of the capability
13 tool, capabilities were granted -- when a
14 capability was added to an application, that
15 capability remained granted to the application 09:48:33
16 unless someone took action to remove it.

17 Q. When did Facebook start -- start the
18 process whereby if a capability -- when a
19 capability was granted to an application, it
20 automatically set a date for that capability to 09:48:57
21 expire for that application?

22 A. That process started happening sometime
23 in 2018, 2019.

24 Q. Do you know why Facebook started that
25 process in 2018 or 2019? 09:49:17

Page 977

| | | |
|----|-------------------------|----------|
| 25 | A. I don't, I'm afraid. | 09:51:13 |
|----|-------------------------|----------|

HIGHLY CONFIDENTIAL

1 Q. Do you know who would know? 09:51:17

2 A. I -- I -- I don't know specifically
3 who -- who was involved in the starting of the API
4 or the designing of the API XFN process, but...

5 Yeah. So I don't know the name of -- of 09:51:39
6 the person or people that were specifically
7 responsible for designing these two processes.

8 Q. Turning to the spreadsheet in Exhibit
9 428, in column K, the header is "should_not_reap."

10 Do you know what "should not reap" 09:52:00
11 indicates?

12 A. My understanding that refers to a setting
13 that determines whether or not a capability should
14 be automatically removed from an app if -- if the
15 app is not actively using the capability. 09:52:20

16 Q. But do you know what values could be
17 entered in the field in column K?

18 A. My understanding is that would be a
19 Boolean or a nullable.

20 Q. Can you explain what a Boolean is and 09:52:49
21 then explain what a nullable is.

22 A. So Boolean means one or zero and nullable
23 means that that field may also be null or empty.

24 Q. And what would a one indicate in "should
25 not reap"? 09:53:07

Page 979

A. My understanding is that a one or true
would mean that the system which automatically
removes capabilities from apps which are not using
them should not remove the capability from an app
if it is not actively using it.

6 Q. And do you know what a zero would mean?

7 A. I don't know what a zero would -- would
8 mean. My understanding is that it's equivalent to
9 a null.

| | | |
|----|--------------------------------|----------|
| 10 | Q. And what would a null mean? | 09:53:40 |
|----|--------------------------------|----------|

11 A. It would mean that the system which
12 removes capabilities from apps if they're not
13 actively being used within a time period should
14 indeed go ahead and do so.

15 Q. And by "null," you mean a blank entry in 09:54:01

16 the field?

| | |
|----|--------------------|
| 17 | A. That's correct. |
|----|--------------------|

18 Q. So each of the nine rows here that I've
19 just highlighted are null; is that correct?

20 | A. That's my understanding, yes. 09:54:18

21 MR. MELAMED: Let's go off the record.

22 THE VIDEOGRAPHER: Okay. We're off the
23 record. It's 9:54 p.m.

24 (TIME NOTED: 9:54 p.m.)

25 | ----o0o----

HIGHLY CONFIDENTIAL

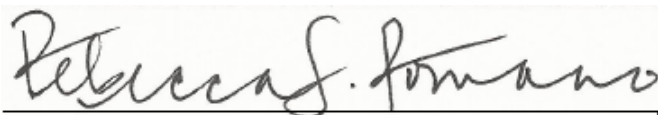
1 I, Rebecca L. Romano, a Registered
2 Professional Reporter, Certified Shorthand
3 Reporter, Certified Court Reporter, do hereby
4 certify:

5 That the foregoing proceedings were taken
6 before me remotely at the time and place herein set
7 forth; that any deponents in the foregoing
8 proceedings, prior to testifying, were administered
9 an oath; that a record of the proceedings was made
10 by me using machine shorthand which was thereafter
11 transcribed under my direction; that the foregoing
12 transcript is true record of the testimony given.

13 Further, that if the foregoing pertains to the
14 original transcript of a deposition in a Federal
15 Case, before completion of the proceedings, review
16 of the transcript [X] was [] was not requested.

17 I further certify I am neither financially
18 interested in the action nor a relative or employee
19 of any attorney or any party to this action.

20 IN WITNESS WHEREOF, I have this date
21 subscribed my name this 23rd day June, 2022.

22
23 

24 Rebecca L. Romano, RPR, CCR

25 CSR No. 12546

SIMON CROSS

June 23, 2022

RE: FACEBOOK, INC., CONSUMER USER PROFILE LITIGATION

JUNE 20, 2022, SIMON CROSS, JOB NO. 5281223

The above-referenced transcript has been
completed by Veritext Legal Solutions and
review of the transcript is being handled as follows:

___ Per CA State Code (CCP 2025.520 (a)-(e)) - Contact Veritext
to schedule a time to review the original transcript at
a Veritext office.

___ Per CA State Code (CCP 2025.520 (a)-(e)) - Locked .PDF
Transcript - The witness should review the transcript and
make any necessary corrections on the errata pages included
below, notating the page and line number of the corrections.
The witness should then sign and date the errata and penalty
of perjury pages and return the completed pages to all
appearing counsel within the period of time determined at
the deposition or provided by the Code of Civil Procedure.

___ Waiving the CA Code of Civil Procedure per Stipulation of
Counsel - Original transcript to be released for signature
as determined at the deposition.

___ Signature Waived - Reading & Signature was waived at the
time of the deposition.

Page 982

HIGHLY CONFIDENTIAL

1 xx Federal R&S Requested (FRCP 30(e)(1)(B)) - Locked .PDF
2 Transcript - You should review the transcript and
3 make any necessary corrections on the errata pages included
4 below, notating the page and line number of the corrections.
5 You should then sign and date the errata and penalty
6 of perjury pages and return the completed pages to all
7 appearing counsel within the period of time determined at
8 the deposition or provided by the Federal Rules.
9 ___ Federal R&S Not Requested - Reading & Signature was not
10 requested before the completion of the deposition.

Page 983

HIGHLY CONFIDENTIAL

1 I, SIMON CROSS, do hereby declare under
2 penalty of perjury that I have read the foregoing
3 transcript; that I have made any corrections as
4 appear notes; that my testimony as contained
5 herein, as corrected, is true and correct.

6 Executed this ____ day of _____,
7 2022, at _____, _____.

8

9

10

11

12

13

SIMON CROSS

14

15

16

17

18

19

20

21

22

23

24

25

HIGHLY CONFIDENTIAL

RE: FACEBOOK, INC., CONSUMER USER PROFILE LITIGATION
SIMON CROSS (JOB NO. 5281223)

E R R A T A S H E E T

PAGE_____ LINE_____ CHANGE_____

REASON_____

PAGE_____ LINE_____ CHANGE_____

REASON_____

PAGE_____ LINE_____ CHANGE_____

REASON_____

PAGE_____ LINE_____ CHANGE_____

REASON_____

PAGE_____ LINE_____ CHANGE_____

REASON_____

PAGE_____ LINE_____ CHANGE_____

REASON_____

SIMON CROSS

Date

Page 985

HIGHLY CONFIDENTIAL

[& - 3:18]

| | | | |
|---|---|--|---|
| & | 19 882:8 | 944:12 | 2100 729:17 |
| & 725:14 726:19 728:5 729:5 730:5 733:18 735:10 982:23 983:9 | 19th 922:10 936:20 938:3,13 1:35 726:18 733:2 733:6 | 2013 797:14 821:3 821:10 826:8,13 838:20 910:13 944:12,13 2014 752:16 794:12 826:8,13 831:8 833:20,22 833:24,25 834:19 834:21 835:5,11 836:4,7 842:5,7,13 843:13 844:3 845:10 846:10,19 847:1,2 910:13 914:13,20 2015 794:21 957:18,22 2016 794:21 2017 910:14 2018 822:19,25 882:7,8 885:6,7 910:14 977:23,25 978:10,14 2019 756:21 759:4 759:13 761:14 764:3,24 885:8 922:10 936:20 938:4,13 977:23 977:25 978:10,14 2020 759:4,14 764:25 2022 725:16 726:18 733:1,6 981:21 982:2,4 984:7 2022-06016 732:12 2025.520 982:9,12 206 727:14 20th 733:6 | 213 731:10 214 729:19 23 982:2 23:51.0 957:9 23rd 981:21 24 922:14 936:16 936:19 938:3,12 25 751:17 754:5 253-9706 731:10 2843 725:4 726:4 298-5735 730:11 2:53 785:21 2c 740:10 2cu 744:5 2d 744:20 800:15 800:16 847:5 848:16,20 |
| 0 | 2 | | 3 |
| 00080 732:16 00080.csv. 920:16 018 732:22 022 732:16 02843 725:6 726:6 029362498 732:19 02936296 732:22 964:24 973:16 02936298.tsv. 945:17 | 2 735:11,16,25 738:4 934:24 936:18 938:1 939:14 945:19 957:7 968:6 2.1 853:3 2.3 853:4 20 725:16 726:18 733:1 982:4 20-0466 725:22 200 881:17 2001 729:16 2007 769:11,12,15 770:19,21,22,24 792:5 850:15,18 852:14,16 874:11 879:17 900:20 905:17 2008 771:8,10,12 792:6 2009 771:23,25 2010 772:1,4,12,17 773:7,10 789:9 791:24 792:7 840:23 850:24 852:14,17 2011 773:17,19,23 775:4 776:17,23 791:7,24 815:11 816:7 817:3 837:12,14 908:15 2012 791:7 815:11 816:7 817:7,24 821:3,10 837:12 837:14 933:10 | | 3 868:3 30 725:12 735:11 757:2 983:1 3000 729:9 303 730:11 30th 833:20,22,25 834:19,21 842:5,7 842:13 843:13 844:3 845:10 846:10,19 847:1,2 3200 727:12 325 867:5 32nd 731:8 3491 725:23 36 958:10,11 36,000 868:18,20 36,008 870:4 36,608 868:14 869:22 871:6 393-8200 729:11 3:18 785:24 |
| 1 | | | |
| 1 983:1 10 934:25 100 791:24 929:24 937:5,12 939:8 976:15 12 817:3 936:23 938:1 1201 727:11 12546 725:20 981:25 12:23:51 957:19 957:22 12th 728:9 14 838:20 145330 968:6 15 742:16 770:16 774:20,20 813:23 913:24 1600 728:10 18 725:6 726:6 1801 730:8 1881 730:16 | | | |

HIGHLY CONFIDENTIAL

[3rd - acquired]

| | | | |
|--|-------------------------|-------------------------|--------------------------|
| 3rd 848:14 | 7 | 766:12 772:10 | 937:23,24 939:4,7 |
| 4 | 7 735:14 | 775:18 780:24 | 939:8 941:16 |
| 4 725:17 732:3 733:8 867:24 975:14 976:12 | 725 725:25 | 805:10 814:5,7 | 943:7,9 944:20 |
| 415 728:12 729:11 | 7321 981:23 | 819:4 821:8 822:7 | 947:22 953:24 |
| 4200 730:9 | 735 732:5 | 835:24 848:4 | 954:2,12,15,21,23 |
| 425 732:11 867:1,5 | 75201 729:18 | 851:11 852:20 | 955:14,20 960:20 |
| 867:8 | 7th 957:18,22 | 853:13 854:6 | 961:2 965:20,21 |
| 426 732:15 920:10 | 8 | 856:5 857:14 | 966:9,11,11 |
| 920:14,14 921:3 | 8 735:12,16,25 | 867:25 868:11 | 969:11 975:19,22 |
| 921:11 933:12 | 745:2,4,6,19,22,24 | 906:19 907:7 | 976:22 978:2,5,7 |
| 934:25 | 889:7,8 | 925:25 932:6 | accessed 764:20 |
| 427 732:18 945:8 | 80202-2642 | 940:5,21,25 942:6 | 767:4,5 786:12,15 |
| 945:13 | 730:10 | 959:9 964:20 | 786:17,21 787:3 |
| 428 732:21 964:15 | 827 725:21 | absence 976:16 | 808:14 809:6 |
| 964:19,22 979:9 | 849-5206 730:18 | accept 960:11 | 860:20 962:10 |
| 445-4003 728:12 | 867 732:11 | accepting 857:16 | accessible 738:6 |
| 480 938:14,22 | 8:26 942:22 | access 758:18,18 | 738:20 739:6 |
| 4:44 840:9 | 8:50 942:25 | 758:21,24 762:9 | 740:6,12 787:8 |
| 4:57 840:12 | 9 | 762:13,15,20,23 | 788:7 959:10 |
| 5 | 9 938:8,11,12 | 766:19 767:19 | accessing 801:4 |
| 5281223 725:24 | 90013 731:9 | 786:8 787:17 | 840:20 853:23 |
| 982:4 985:2 | 920 732:15 | 789:10 791:16 | 854:15 907:2 |
| 55 751:20 | 94105-0921 | 792:11 793:6 | account 894:18 |
| 555 728:9 729:8 | 729:10 | 802:18 820:23 | accuracy 937:4 |
| 731:7 | 94304-1211 | 829:12,23 836:22 | 938:2 |
| 5th 731:7 | 730:17 | 837:6,25 838:13 | accurate 741:12 |
| 6 | 945 732:18 | 839:5 841:3,11 | 754:21 773:16 |
| 6 725:12 735:11,14 | 94607 728:11 | 850:15 851:11 | 784:2 798:2 802:9 |
| 60 757:2 | 95 937:9 938:2 | 852:25 853:19 | 808:5 845:5 |
| 612 870:4 871:6 | 964 732:21 | 855:2 859:17,18 | 853:12 855:5,9 |
| 623-1900 727:14 | 98101 727:13 | 864:1,10,11,20,23 | 890:4,20 915:6 |
| 650 730:18 | 985 725:25 | 866:4,12 867:19 | 922:11 926:1 |
| 698-3204 729:19 | 9:54 980:23,24 | 869:23 873:6,15 | 935:1 936:24 |
| 6:09 884:15 | a | 873:19,20,21,23 | 937:4,5,6,7,9,12 |
| 6:53 884:18 | abilities 855:21 | 874:1,2,4,8 875:18 | 937:17 938:5 |
| | ability 842:21 | 875:25 876:17 | 943:17 950:16 |
| | 866:10 876:15 | 877:17 878:5,6,8 | accurately 745:4 |
| | 905:6 | 878:16 879:6 | achievable 775:11 |
| | able 741:1,6 | 881:20 887:6 | acquired 800:25 |
| | 762:19 763:6 | 905:22 909:22 | 811:2 819:24 |
| | | 917:14 932:9 | 828:14 829:4 |

HIGHLY CONFIDENTIAL

[acquired - answer]

| | | | |
|--|---|---|--|
| 830:6 836:21 840:17 844:19 845:8 846:8 847:8 848:1 act 782:16 810:9 892:7 894:10 action 879:11,15 897:24 951:14,15 951:16 956:24 957:24 958:2,5,6,8 958:13,14,18,22 963:25 964:8,11 964:13 976:10 977:4,16 981:18 981:19 actions 725:9 726:9 908:11,13 908:22 927:11 957:4 active 855:4 915:18 932:20 actively 979:15 980:5,13 activities 891:14 897:19 activity 820:9,24 826:11 831:3,6 832:6,22 891:2 905:24 907:11,16 908:16,17 909:23 910:4,9 actors 831:17 actual 746:17 775:21 835:15 ad 931:7 adaniel 727:17 add 737:15 added 793:1 948:17 949:2 950:9,19,23 967:18 977:14 | 978:4 additional 849:6 928:1 954:10 address 785:3 849:10 addresses 823:20 825:10 adele 727:8 733:19 adjustments 927:9 administered 735:2 981:8 administering 734:10 admitted 837:7 advance 870:11 advanced 855:1,6 855:10,22 advent 789:8 790:12,15,18 adversarial 811:19 814:22 advertisers 736:20 739:17 740:20 745:15,20 746:7 746:21 850:14 912:1 advertising 736:4 736:10,13,22 739:1,8 891:7,11 891:11,21,23,24 912:14 aeo 732:12 afraid 751:4 761:25 763:7 773:5,15 774:9 775:1 807:21 810:3 822:12 838:9 839:2,9 859:20 861:23 932:1 958:12 963:20 978:25 | aggregated 912:12 912:16,18,21 ago 772:15 784:1 839:3 860:6 861:21 967:1 agree 734:9 877:21 ahead 759:20,20 780:7 796:16 824:8 845:2,2 861:9 867:15 877:9 891:8 904:8 939:2 940:16 948:14 954:8 980:14 alive 925:21,23,25 allow 797:19 816:20 838:3 855:16 857:9 883:16 952:15 955:19 allowed 775:22 789:10 791:4 850:19 851:19,21 857:5 907:10 910:8 955:2 allowing 875:1 allows 931:4 ally 803:4 827:6 835:13,21 836:14 844:7 848:19 alternative 950:8 alto 730:17 ambiguous 919:7 amount 757:1 787:10 796:5 amounts 760:17 760:18 analysis 913:23 914:10,13 | analytica 882:25 978:18 analytics 910:10 android 882:23 901:19,22 angeles 731:9 announced 752:16 834:20 852:17,22 853:3,7,12 announcement 853:6 882:5 885:5 anomalous 812:6 anomaly 823:7 answer 735:17 736:9,12 739:4 740:1,4 741:6,18 743:19 746:8,22 747:15 750:10 759:9 761:4,17,20 761:25 763:7,9 764:6 765:13,17 765:18,20 768:4 768:20 770:4 771:13,16 772:19 773:13,16 779:22 780:9 782:5,25 783:21 784:2,12 786:18 787:4,6 795:16 799:9,13 805:21 806:8 810:2 811:16 812:10,11,12,14 814:5,7 819:4,17 827:6 835:23,25 836:2,10 839:9 844:7 846:4 854:4 854:11 855:23 858:17 860:16,24 861:11,23 872:21 880:3 889:25 890:4,20 891:8 |
|--|---|---|--|

HIGHLY CONFIDENTIAL

[answer - app]

| | | | |
|--------------------------|--------------------|--------------------------|--------------------|
| 900:17 902:22,22 | 778:22,24,25 | 909:22 910:2 | 795:1,9,18 796:1,2 |
| 912:6,7 913:4,5,8 | 779:16,16 780:13 | 911:13,19,20,21 | 796:24 797:5,7,15 |
| 913:22 914:2 | 780:16,19 781:14 | 911:21,23 914:6 | 797:17,23 798:1,3 |
| 915:1,3,6 925:22 | 781:21,24 786:8 | 914:12 917:7,9,9 | 798:10 802:6 |
| 926:1,5 932:17 | 787:17,19,22,24 | 917:11 918:1,3,7,8 | 803:15,20,22,22 |
| 935:8 939:2 | 788:1,21 790:12 | 918:12,13,15,23 | 803:23 805:6,7,10 |
| 940:22,25 941:23 | 790:15,18,19,20 | 918:23,25 919:1,1 | 812:19 813:1 |
| 950:18 954:8 | 792:4,4,5,5,7,23 | 919:3,4,11,13,17 | 815:19 816:23 |
| 967:8 | 792:24 794:17,18 | 919:19,25 920:5 | 818:25 828:18 |
| answerable | 795:5,7 811:7,11 | 921:9 922:13 | 829:10,10 830:10 |
| 765:23,23 | 811:15 812:2,4,8 | 923:21 933:24 | 830:25 831:6 |
| answered 857:19 | 812:13,16,20,21 | 934:1,6,7,9,17,21 | 832:1,9,19 833:2,4 |
| 859:14 861:4 | 813:1,2 814:11,11 | 934:23 935:5,10 | 833:6,7,18,19,22 |
| answering 749:13 | 814:16 815:18,18 | 935:11,22 936:15 | 833:23,25 834:5 |
| 940:23 | 816:3,11,21 817:2 | 936:16,22 937:24 | 834:11,16,20,22 |
| answers 762:2 | 817:8 818:1,7,9,9 | 938:21 939:11,21 | 835:1,4,13 838:2 |
| 765:21 782:21 | 823:19 825:9,24 | 939:21 940:4 | 838:23 839:6 |
| 849:7 868:11 | 834:3 842:21 | 941:5,6,11,13 | 841:3,7,11,14,20 |
| 900:14 | 850:8,9,19,19,23 | 942:2,5 943:14 | 841:20,21,24 |
| anticipate 867:10 | 851:2,8,9,10,12,22 | 944:18 960:14,18 | 842:4,4,8 843:9,12 |
| anybody 763:17 | 852:2,9,11,11,13 | 960:22,23 961:3,9 | 846:23 847:1,2 |
| 889:21 | 852:16,20,21 | 961:10 962:8 | 855:22 856:18 |
| anymore 882:19 | 853:2,6,8,11,17,21 | 978:1 979:3,4 | 861:16 862:7,15 |
| api 739:11 741:5 | 854:12 855:15,19 | apis 749:4 775:21 | 863:17 864:9,9,15 |
| 744:11,15 748:15 | 856:4,18 857:18 | 777:18 778:4,14 | 864:15,17 865:4,4 |
| 749:2,4 762:18 | 858:1,3 859:2,8,23 | 779:11,19 780:1 | 865:6 877:16 |
| 767:22,23 768:5,6 | 860:23 861:16,17 | 780:10 789:14 | 878:4,4,8 879:3,5 |
| 768:10,14,17,19 | 862:5,6,14,14,19 | 790:16 795:8 | 879:11,11,17,19 |
| 768:21,23,23 | 862:19 863:3,5,8 | 853:18 960:18 | 879:24 880:4,4,12 |
| 769:14,22,24 | 863:17 864:2,4,5 | 978:11,15 | 880:15 881:6,7 |
| 770:2,6,11,13,18 | 864:10,13 865:13 | apologies 842:20 | 885:20 887:23,25 |
| 770:20,22,23 | 865:20,24 866:21 | 869:25 | 888:1,3 890:11 |
| 771:8,9,11,23,25 | 866:22 873:7,8,10 | apologize 818:10 | 891:2,13 894:13 |
| 772:1,3,7,12 | 873:13,22,23 | 877:7 | 901:15,16 902:25 |
| 773:17,20,23,24 | 878:6,9,9,10,10,10 | app 762:13,15,19 | 905:7,21,24 906:2 |
| 774:6,11,15 775:3 | 878:19 885:23 | 762:22 766:17,18 | 906:12 907:1,3,7 |
| 775:14,16 776:18 | 886:3,5,25 887:5 | 766:22 767:23 | 907:11,17 908:1 |
| 776:22 777:1,1,3,3 | 887:11,12,13,13 | 773:1,1 775:3 | 908:17 909:6,14 |
| 777:11,15,16,21 | 887:20,22 888:4 | 786:5,8,15 788:22 | 909:21,24 910:7 |
| 777:25 778:5,5,6,6 | 888:23 890:24 | 793:20,21,23 | 910:10,11,12,17 |
| 778:9,9,12,17,21 | 891:15 905:22,23 | 794:2,9,11,16 | 910:23 911:5,9,12 |

HIGHLY CONFIDENTIAL

[app - ascribed]

| | | | |
|---|--|---|--|
| 911:14,23 915:15 917:5,17 918:8 922:16,19,21 924:1,9,10,11,16 924:19,20,21,23 924:24 925:2,4,5,6 925:7,9,11,14,18 925:20 926:3,4,10 926:13,14,17,19 926:24,24 927:1,6 927:7,8,15,23 928:5,18 929:19 929:22,23 930:5 930:15,18,25 931:11,14,19 932:19,24,25,25 933:4 936:20 938:2,11 939:4,7 939:23 940:3 941:16 943:11,14 947:21,24 949:16 949:17,22,22,25 950:5,6,9,10,11,12 950:15 951:1,2,3,5 951:7 953:13,16 954:15,20 955:2 955:12,14 965:19 965:20 966:9,11 969:20,22 970:22 974:7,14,19 975:18,22 976:13 976:22 977:11 979:14,15 980:4 app's 843:15 925:14 apparatus 757:16 757:19 apparatuses 757:20 appear 905:8 975:6 984:4 | appearances 727:1 728:1 729:1 730:1 731:1 appearing 727:2 728:2 729:2 730:2 731:2 893:9 982:18 983:7 appears 972:18 976:1 apple 900:8,19 901:9,11,16 apple's 900:5,5 application 758:17 758:20,24 764:20 777:9,10,12,14 787:16 801:10,19 804:9,22,24 806:4 813:2 814:17 823:16 833:11 841:5 888:7 910:9 915:16,17,19,21 915:22 916:18 917:6 922:13 925:13 926:16 933:4 936:15,21 943:13,22 961:8 961:21,23 963:23 964:7 965:18 969:24 971:17 972:3,5,12,24 973:7 975:4,12,16 975:21 976:9 977:1,6,14,15,19 977:21 applications 789:10 791:13 793:24 797:21 798:9 802:24 823:17 827:4 930:5 950:21,24 952:18 953:1,1 | 961:5 974:9,15 976:6 applied 804:15,16 804:20,20 805:13 805:19 807:16 927:18 applies 812:13 applying 951:2 appreciate 784:19 839:17 849:17,21 850:3 868:19 946:6 appropriate 799:25 849:11 857:18 878:15 881:10,11,12 935:20 appropriately 807:7 837:19 approval 777:13 approved 800:11 approving 834:10 approx 937:2,2,15 approximate 836:6 apps 762:9 767:5 767:19 772:8 775:23 787:3 793:6 798:14,16 798:20 799:5,19 802:18 803:1 804:6 805:23 806:1 807:7,11 812:1,2 815:21 816:2,10,12,21 817:2,9,15 818:2 820:4,16,17 823:2 823:21,25 824:5 824:15 825:25 826:1,4,6,6 827:11 832:15 833:19,21 | 833:24 842:21,25 843:21 853:18,20 853:23 854:16,23 854:25 855:4,5,6 855:10 856:3 873:19,21 874:4,7 875:1,3 905:6,11 905:18 906:3,13 906:15,19 907:6 907:15 908:6 924:12 928:17,21 928:23 929:13,17 930:1,8,9 931:11 931:13,14,18 932:15,21 939:3 943:7,19 944:19 952:14 953:16,24 954:2,12,23 955:19 960:19 961:2 966:3 978:2 978:5,7 980:3,12 april 752:16 794:12 831:8 833:20,22,25 834:19,20 835:5 842:5,7,13 843:13 844:3 845:10 846:10,19 847:1,2 850:24 852:17 882:6,7 885:6 967:2 architected 824:10 archive 869:24 area 853:18 areas 828:10 argue 849:9 ascertain 866:19 871:10,12 910:21 aschwing 729:12 ascribed 939:12 948:25,25 |
|---|--|---|--|

HIGHLY CONFIDENTIAL

[aside - aware]

| | | | |
|--------------------------|--------------------------|--------------------------|---------------------------|
| aside 741:25 | assistants 823:16 | attention 743:4 | 979:14 980:2 |
| asked 747:15 | associate 731:16 | attorney 729:7,15 | automation 827:9 |
| 776:18 799:4 | 901:25 910:24 | 730:15 734:13 | available 738:7,25 |
| 835:13 843:7 | associated 875:1 | 750:8 785:7,9 | 739:10,14 740:12 |
| 849:5,5 854:5 | 894:17 902:11,19 | 981:19 | 740:19,24 741:3 |
| 859:5,14 861:4,6 | 903:3 909:7,15 | attorneys 727:10 | 741:10 742:2,17 |
| 912:6 933:25 | 924:22,25 925:4,8 | 728:8 730:7 | 759:8 760:3 |
| asking 735:10 | 925:11,18 926:2 | audio 948:20 | 775:20 787:12,18 |
| 739:25 741:22 | 926:13,23 927:6 | audited 802:25 | 787:22 788:10,14 |
| 749:14 770:17 | 927:22 928:17 | audits 844:12 | 788:17 790:14,17 |
| 771:15 790:2 | 930:25 932:24 | auld 728:5 733:18 | 793:5,11 804:5 |
| 795:21 824:17 | 934:24 948:12 | 735:10 | 805:7,14 815:25 |
| 830:21,22 843:15 | 949:6 956:11 | austin 729:6 | 816:10,17 817:12 |
| 858:21 859:10,24 | 971:7,19 | 733:22 759:17 | 821:5,7 828:19 |
| 860:3,8,10 863:15 | association 903:8 | 848:11 867:25 | 830:17 831:17,20 |
| 870:20 879:3 | 903:12 | 870:17 884:10 | 831:22 850:6,11 |
| 898:20 899:15 | assume 933:5 | 938:25 | 885:10,18 886:17 |
| 910:25 911:1 | 958:11 | auth 876:2 | 904:23 907:21 |
| 919:22 920:2,23 | assumed 937:6,7 | auth.login 875:22 | 908:2 909:8,16,17 |
| 927:19 929:7,8,9 | assuming 901:22 | 876:6,7,16 | 910:5,13,18 |
| 940:11 941:8 | assumption | auth.login. 876:4 | 919:15 921:13 |
| 966:2 | 967:12 | authenticated | 926:4,7,19 932:12 |
| asks 829:11 | atomic 917:11 | 816:4 864:3 939:5 | 932:22 933:9 |
| 877:16 879:5 | 918:1 933:19 | authentication | 943:6,18,21 |
| aspect 800:18,23 | attach 742:6 | 777:18 778:1 | 962:12 966:21 |
| 803:9 810:7,9 | attached 742:6 | 791:12 875:14 | 975:15,18,20 |
| 836:18 844:17 | 867:3 920:12 | author 753:8 | avenue 727:11 |
| 847:5 848:21 | 945:10 964:17 | authorization | 729:16 |
| aspects 735:25 | attachments | 791:18 876:3 | avoid 737:14 |
| 810:24 819:21 | 740:25 | authorize 876:3 | avoidance 848:18 |
| 828:11 829:2 | attempt 750:15 | authorship 753:8 | aware 737:22 |
| 830:3 835:18 | 762:12 764:18 | auto 951:22 | 743:13,15,21,23 |
| 840:15 845:6 | 801:4 819:15 | automated 820:13 | 743:24 763:3 |
| 846:5,12 847:10 | 843:1 845:13 | 820:20,24 821:1,2 | 768:8,12 770:10 |
| 847:19 848:20 | 913:10,16 959:8 | 821:9 834:14 | 770:18,20 771:6 |
| assertion 796:12 | attempted 744:25 | 837:2,5,24 838:11 | 773:11 776:13 |
| assess 847:16 | 829:18 | 838:22 | 781:16 797:11 |
| assessment 752:15 | attempting 843:8 | automatically | 805:18 809:14 |
| 752:20 843:23 | attempts 758:16 | 807:23 952:2 | 825:18 828:16 |
| assistant 869:23 | 762:18 830:16 | 976:7,9,18 977:3,7 | 829:8 832:22 |
| | | 977:10,20 978:4 | 845:19,23 846:5 |

HIGHLY CONFIDENTIAL

[aware - browser]

| | | | |
|---|--|--|---|
| 846:13 856:18 862:20,22 863:5,7 865:17 866:2,15 886:13 888:13 904:14,21 912:9 912:15 916:1 920:5 929:21 930:13 931:16,21 932:1 945:6 959:20 960:12 976:24 | 942:24 957:2 958:22 961:17 967:13 backed 962:14 bad 824:5 base 905:7 919:21 based 782:21 783:22 814:24 815:2 827:19,20 841:13 846:4 924:17 936:3 942:3 952:4 959:5 | behavior 778:5 811:8,12,15 812:17 814:11 822:16 823:19 824:8 825:24 826:5 896:2 943:15,20 976:25 behaviors 807:7 believe 737:10 740:16 749:24 752:5,9 753:17 754:1 761:13 784:4,5 791:7 810:22 853:3 868:6 916:3 967:2 benefits 747:1 best 735:22 740:2 740:7 745:21 746:9,14,23 747:6 752:4 758:15 763:4 782:21 803:4 805:16,21 822:2 823:13 835:13,21 836:15 844:7 845:24 847:21 848:25 849:1 861:11 866:7,7,10 900:14 better 754:2 762:2 799:9 beyond 748:23,25 749:1 810:5 814:7 842:15 bfalaw.com 728:13,14 binding 734:11 bio 839:17 bit 744:17 839:12 847:13 850:7 921:18 965:6 | blank 976:11 980:15 bleichmar 728:5 733:18 735:10 boolean 979:19,20 979:22 bottom 869:6 boundary 738:24 739:2 box 876:15 branded 874:11 874:17 break 783:8,10 785:25 797:24 839:14,16,18,23 839:24 840:1 877:5 884:19 889:3 903:20 942:20 breakout 883:24 884:2,8 brief 810:13 briefly 833:4 broad 742:21 828:8 915:2 broader 874:21 broadly 770:5 854:14 881:18 916:4 924:16 broke 858:23 brokers 736:4,11 736:13,21 739:8 739:17 740:20 745:9,11,16,20 746:7,21 850:14 912:2,14 brought 794:18 browser 894:13 895:3,6,13,16,16 895:17,22,25 896:2 |
| b | basic 815:13 basis 773:1 886:7 886:10 931:7 batch 851:16 bates 750:1 752:13 920:15 945:17 becoming 797:11 began 764:24 770:13 772:9 794:11,15,21 831:7 834:25 944:12 beginning 733:14 756:11 772:4 826:10 874:15 875:12,17 begins 772:5 begun 882:6 behalf 726:16 734:3 735:18 842:22,25 861:17 862:8 878:6 882:14 892:14 907:2 938:4,14 behave 823:3 behaved 749:4 809:23 behaving 820:17 824:16 | | |
| b 725:12 731:5 732:8 735:11 746:11 869:11 871:15 922:16 936:21 938:7 949:17 950:16 969:2 983:1 back 735:6 762:7 771:5,7 785:23 793:8 800:6 818:23 828:23 840:4,11 842:22 843:2,4,9 847:12 848:24 858:2 879:17 884:17 888:14 890:12 891:15 892:16,20 894:4,25 895:7,10 895:17 897:4 900:23,25 904:24 905:2,7,19 906:4 906:20,21,24 907:4,8,11,17,25 908:9,17,22 909:2 909:6,15,20 910:4 910:9 914:18 915:17,22 923:6 927:2 932:5 933:10,12 934:5 | | | |

HIGHLY CONFIDENTIAL

[browsing - capability]

| | | | |
|----------------------------|---------------------------|---------------------------|--------------------------|
| browsing 894:22 | california 725:2 | 770:2,6,11,13,18 | 947:2,5,10,11,14 |
| bug 957:11 | 725:20 726:2 | 770:20,22,23 | 948:1 950:19 |
| build 760:21 | 728:11 729:10 | 771:8,10,11,23,25 | 952:14,16,17,20 |
| 836:11 880:11 | 730:8,17 731:9 | 772:1,3,7,12 | 952:23,25 953:10 |
| building 771:4 | call 762:4 768:10 | 773:17,20,23,24 | 953:11,16,25 |
| 837:14,16,21 | 775:15 777:1,15 | 774:6,11,15 775:3 | 954:2,3,13,19,24 |
| 876:14 | 777:17,21 778:12 | 776:18 777:4 | 954:25 955:2,14 |
| built 758:1,3 759:3 | 790:20 813:2 | 779:8 780:19 | 955:16,20 959:18 |
| 764:24 814:14 | 851:8,17 852:8,11 | 786:4 812:2,20 | 960:19,20,25 |
| 815:4 837:12 | 852:12 853:21 | 814:11,16 815:18 | 961:1,4,21 966:4,4 |
| 879:23 880:3 | 856:7,19 857:3,5,8 | 815:19 816:4,11 | 966:5,10,15 |
| 882:20 910:12 | 857:9,11,14 | 816:22 817:2,8,14 | 968:13 973:17,21 |
| bunch 968:23 | 858:15 859:8 | 818:1 823:21 | 973:25 974:16,19 |
| buongiorno | 861:17 863:17,21 | 825:9 852:20 | 976:6 977:13 |
| 729:14 733:25 | 864:5,15,17 865:4 | 853:13 856:13,15 | 978:3,5,7 980:3,12 |
| 734:4,6 | 865:6 892:6,25 | 856:21 861:16 | capability 943:10 |
| business 741:16 | 897:17 901:4 | 863:9,9 864:10 | 943:13,15,17 |
| 743:6 751:9 | 905:23 909:22 | 873:22 885:24 | 944:16,17 945:5 |
| 753:13 795:7,8 | 910:3 917:7,9 | 886:3,5,25 887:5 | 947:9,22,23,23,24 |
| button 891:25 | 918:3,8,12 920:5 | 905:22 911:23 | 947:25 948:1,10 |
| 892:2,4,5,5,7,8,13 | 929:1 933:20 | 914:6,8 917:21 | 949:6 950:2,4,9,14 |
| 892:14,19,24 | 934:6 940:2 | 922:13 934:2 | 950:20,23,23 |
| 893:1,5,6,8,16,20 | 941:11,13 | 939:6 | 951:22,24 952:6 |
| 893:21,25 894:1,4 | called 767:24 | cambridge 882:24 | 952:10,13 953:2 |
| 894:7,10,15,18,23 | 772:13 774:6 | 978:18 | 953:12 954:12,16 |
| 894:24 895:1,4,8 | 775:22 777:25 | campen 727:7 | 954:21 955:1,9,11 |
| 895:10,19 896:15 | 782:10 791:4 | canonical 788:22 | 955:12 961:3,6,7 |
| 896:16,21 897:2,5 | 806:11 827:1 | 793:12,14,15,25 | 961:22 965:19,20 |
| 897:8,11,15 898:6 | 850:19 854:16 | 794:5,8 797:24 | 965:21 966:10,11 |
| | 863:3 874:12 | 798:2,5,6,13,17,21 | 966:12 967:16,17 |
| c | 875:13,21 910:7 | 799:20 832:12,14 | 968:4,7,13,16,21 |
| c 752:5,5 758:8,9 | 926:11 929:10 | 832:18 902:14 | 970:2,5,5,6,8,10 |
| 933:15 934:25 | 939:3 944:22 | canvas 791:13 | 970:19,20,22,23 |
| 951:9 | 960:17 961:11 | cap 952:7,9 | 970:24,24 971:2,3 |
| c2 732:16,22 | calling 790:12 | capabilities 755:1 | 971:3,6,6,15,16 |
| ca 732:19,22 | 811:7,11,15 812:4 | 755:12,15,18,20 | 972:2,5,8,11,14,23 |
| 945:17 964:24 | 812:16 814:11 | 755:23 756:7 | 973:6 974:7,14,19 |
| 982:9,12,20 | 823:19 825:24 | 757:10,12 761:23 | 975:4,11,15,19,20 |
| cache 897:22 | 853:24 878:10 | 943:2,3,4,5,7,20 | 975:23 976:8,14 |
| calendar 748:11 | calls 767:23 768:5 | 944:2,3,5,10,11,15 | 976:18,22 977:2,2 |
| 748:12 | 768:5,6 769:24 | 944:20 946:25 | 977:7,7,10,12,14 |

HIGHLY CONFIDENTIAL

[capability - clear]

| | | | |
|--|---|--|--|
| 977:15,18,19,20 979:13,15 980:4 capacity 772:6 capture 741:22 captured 861:19 captures 967:15 cardaci 748:6 751:25 752:1,5,6,8 752:24 753:14 754:4,10 cari 727:7 carrier 899:9,13 carry 895:18 carve 737:5,11 carved 735:25 case 725:5 726:5 740:17 744:22 756:4 769:6 800:21 801:1 805:13 811:3 813:16,18 815:6 817:12,25 819:25 820:3 821:17 828:15 829:5,21 830:7,18 836:21 840:18 841:7 842:15 843:16 844:20 845:9 846:9 847:8 848:2 848:18 864:3 876:7 880:10 881:13 900:20 916:4 920:15 934:12 935:9 942:9 973:10 981:15 cases 767:25 779:21 811:25 851:13 855:20 923:12 950:21 | caught 751:23 caution 750:7 caveat 936:25 caveats 763:2 ccp 982:9,12 ccr 725:20,21,23 981:24 ceased 882:4 cell 957:12,20 cells 870:3 956:3 center 823:22 certain 735:24 750:22 751:3 762:9 766:12 771:9 786:16 817:20 833:8,9 851:20,23 853:12 860:6 862:4 879:22 899:7 914:6 924:11,11 927:9 959:14 973:3 976:15 certainly 802:13 808:17 813:11 815:9 817:7 851:25 944:13 certainty 817:21 certified 726:20 726:21 981:2,3 certify 981:4,17 cetera 810:20 876:24 916:10 chad 748:6 challenge 832:15 challenges 811:18 chance 870:14 change 770:15 778:9 789:22 791:22,23 792:4 792:18 795:4,15 795:17,18,21 | 796:13,19,22,24 797:5,15,18 895:13 896:8 921:16 946:9,12 949:1,4,21 950:2,4 950:5,10 951:4,22 953:3,5 956:9 985:4,7,10,13,16 985:19 changed 770:3 771:3 779:12 780:11 787:13 788:7,10,14,18 789:1,4,7 790:14 790:23 791:1,10 791:19 792:14,22 793:2,6 799:7 813:4,24 816:18 819:11,13,14 826:16 877:3 896:9 changeover 953:6 changes 752:16,23 789:13,20,20,24 790:2 792:1 794:21 811:22 838:12,16,19 914:12,15,20 919:7 945:21 947:8,11,17,20,21 947:25 952:5 955:9,11 changing 795:3,14 797:7 check 818:24 839:13 842:13 checked 808:12 checking 808:18 checks 878:17 942:7 | chen 731:16 733:24 choose 780:24 855:11 907:11 908:9 909:2 chose 855:13 907:16,25 chosen 804:10 855:14 circumstance 777:20 876:11 circumstances 781:21 794:7 876:5,8 894:2 943:23 973:13 977:5 civil 982:19,20 clarification 749:15 812:22 clarifications 844:25 clarified 737:19 clarify 737:13 740:2 746:6 759:21,22 769:8 799:15 852:4 863:12,22 892:22 940:24 941:1 965:25 967:7 970:12 clarifying 973:23 clarity 746:1,20 847:22 890:19 class 741:2 classify 760:9 claufenberg 727:16 clear 736:2,9 737:14 739:19,24 740:1 741:8 743:18 745:17 |
|--|---|--|--|

HIGHLY CONFIDENTIAL

[clear - concerning]

| | | | |
|---|---|--|--|
| 772:14 782:20,23 796:11 800:9 803:8 810:21 824:17 835:24 844:13,14 860:8 860:16 870:14 896:19 899:19 923:7 946:6 953:9 clearly 752:3 click 893:25 894:1 894:7 896:21 897:1,2,5 clicked 892:18,21 894:3,15,18 895:8 895:10 898:5 clicking 894:10,24 897:11 clicks 915:22 client 750:8 785:7 785:9 close 837:1 881:5 895:16 closed 895:21,22 closely 780:15 835:14 cnt 936:9,10,11 939:15 941:18 code 760:10,12 778:16,19,22,23 779:4 780:14,20 808:1,2,15 877:21 890:25 918:4,5,5 919:12,12,20 933:19,22 934:18 934:19 982:9,12 982:19,20 coded 782:10 codes 778:21 779:2,4,8,20,24 780:3,3,18,21,23 | codifies 780:22 colleagues 929:4 929:12 collect 797:20 798:8 898:8,11,12 898:19,21 899:2 899:20,25 900:8 900:21 901:10,19 collected 899:16 collection 918:24 collects 930:24 colloquially 862:10 927:5 colorado 730:10 column 868:25 869:11,11,11,13 870:3 871:15 917:20 921:18,19 921:25 922:1,16 933:15 934:25 936:8,17,21 937:1 937:19,20 938:7,8 939:13,15 946:2 946:15 948:3 949:17,23 950:12 950:16 951:4,7,9 952:7,11 955:22 955:24 956:3,15 956:18,22,22 957:5,24 958:24 960:13,21 963:14 963:18,19 964:3 967:23,24,25 969:2,20 970:2,6 971:11,25 972:1 972:18 973:2 974:22 975:5,24 976:4,20,23 979:9 979:17 columns 869:18 928:6 936:19 | 942:13 945:22 965:6 967:21 974:21,21 combine 931:17 931:21 combined 931:13 come 742:25 763:18 764:24 840:4 comes 738:24 890:17 coming 823:21,22 860:17 890:21 commence 794:9 794:13 820:21 commenced 847:1 847:2 commencing 726:17 common 775:19 778:13,14 814:22 824:1 825:11 828:20 855:20 907:9 commonalities 825:24 commonly 874:19 communicated 894:3,4,25 895:10 897:4 940:19 communicates 741:15 communication 894:23 communications 973:24 company 771:5,7 772:18 809:2 882:15 company's 919:1 | companywide 962:1,6 complete 742:23 780:9 799:10 886:4 976:25 completed 982:7 982:17 983:6 completely 861:22 882:15 completion 981:15 983:10 complex 779:23 827:22 830:2 complexity 765:15 compliant 843:3 complicated 900:16 complies 734:19 component 744:15 compound 856:16 comprehensive 770:4 781:24 comprise 760:25 computational 937:15 compute 760:18 761:21 computer 895:22 895:23 967:6 computing 760:23 937:18 concept 787:25 788:1,3 789:9 797:1,12 823:9 827:17 919:20 concern 757:14 concerned 942:5 concerning 752:19 797:7 800:18,24 811:1 819:22 828:12 829:3 |
|---|---|--|--|

HIGHLY CONFIDENTIAL

[concerning - count]

| | | | |
|---------------------------|---------------------------|--------------------------|---------------------------|
| 830:4 836:19 | consist 958:13 | 915:5 918:16 | 842:11 847:10 |
| 844:18 845:7 | constantly 822:22 | 919:8 922:5 | 851:17 852:14 |
| 846:6,17 847:6 | constituted 808:20 | 936:13,14 939:19 | 857:1,8,15 870:17 |
| concerns 744:6,20 | constitutes 811:14 | 940:1 947:2,2,5 | 873:9 879:4 888:1 |
| 745:6 849:17 | consulted 813:11 | 949:15,19 956:17 | 892:21 897:4,5,21 |
| 978:17 | consumer 725:5 | 961:16 964:11,14 | 906:13,21 908:7 |
| concrete 886:12 | 726:5 733:9 982:3 | 968:2 976:3 | 916:22 925:5 |
| concretely 821:14 | 985:1 | 977:11 | 928:24 946:10 |
| conduct 914:6 | cont'd 729:1 730:1 | contexts 872:7 | 949:7,8 954:4 |
| conducting 835:4 | 731:1 | continually | 955:6 956:4,5 |
| conducts 742:12 | contact 982:9 | 761:10 | 957:17 968:9 |
| 743:6 | contain 766:22 | continue 810:13 | 971:8 980:17,19 |
| confident 772:3,16 | 776:9 930:17 | 834:1 838:10 | 984:5 |
| 772:19 773:2 | 950:20 971:23 | 928:7 952:22 | corrected 984:5 |
| 782:5,12 791:25 | 972:9 | continued 726:15 | correction 738:18 |
| 836:10 929:24 | contained 743:9 | control 781:21 | 873:12 |
| 930:2,4 963:7 | 761:5 773:4 856:3 | 869:6,7 | corrections 982:14 |
| confidential | 928:12 964:2,3 | conversation | 982:15 983:3,4 |
| 725:10 | 984:4 | 748:25 749:1 | 984:3 |
| confidently | containing 743:10 | 753:20,22,23 | correctly 738:15 |
| 773:18 | contains 759:5,7 | 754:12 757:7 | 807:25 818:8 |
| configure 790:16 | 928:4 930:13 | conversations | 857:21 864:18 |
| confines 741:23 | 973:16 974:18 | 742:13 744:3 | 865:7 879:2 934:2 |
| confirm 745:4 | content 753:4,6 | 747:22,24,25 | correlation 971:5 |
| 870:24 | 762:7 801:21,24 | 754:15 757:5,7 | correspondence |
| confirmed 802:8 | 802:1 842:22 | 854:7 929:3 | 845:1 849:12 |
| confusing 934:3 | 890:12 946:19,23 | corollary 971:8 | corresponding |
| connect 874:19,21 | 951:25 952:1 | corporate 725:13 | 936:22 |
| 874:23,25 | contents 959:9 | correct 735:18,19 | counsel 727:1 |
| connection 899:18 | context 739:19 | 735:21 736:6 | 728:1 729:1 730:1 |
| 902:10 | 742:20 753:3 | 740:10,13 742:3,4 | 731:1,16 733:14 |
| consent 764:1,2,9 | 793:22 794:4,17 | 742:8 744:22,23 | 734:4,9 736:19 |
| 764:12 978:19,20 | 796:7 808:11 | 745:2,24 747:18 | 744:18 848:9 |
| 978:23 | 811:23,23 812:8 | 751:24 758:9 | 867:9 868:23 |
| consideration | 812:14,24,25 | 762:10 768:5 | 920:17,21 936:7 |
| 746:16,17,18 | 815:5 823:2 824:3 | 781:1,2 784:5 | 946:24 958:21 |
| considered 809:9 | 830:18 845:9 | 788:8 798:11,21 | 963:21 973:24 |
| 811:21 812:6 | 846:9,11 847:4 | 807:8 814:19 | 982:18,21 983:7 |
| 897:15 933:4 | 872:1 904:13,17 | 818:2,3 819:6 | count 917:16,20 |
| 939:22 941:7 | 904:18 910:23 | 823:4 831:1 836:5 | 936:11,12,14 |
| 942:8 | 912:12 914:1 | 841:16 842:5,6,10 | 937:1,2,3,3,15 |

HIGHLY CONFIDENTIAL

[count - date]

| | | | |
|--|---|--|--|
| 939:17,18 counts 941:14 couple 747:10 789:24 867:12 course 785:11 849:15 914:21 court 725:1 726:1 726:21 734:8,17 734:20 867:2 884:13 920:11 945:9 964:16 981:3 courts 734:3 cover 736:15 737:24 828:8 855:19 covered 841:4 create 760:3 761:6 764:9 765:16 862:13 931:7 933:23 934:9 created 750:17,19 759:2,13,24 760:1 760:5,5 761:12,13 761:18 764:22 765:1,10,10 793:17 806:16 833:24 887:7 923:1,9,11,12,14 925:14 948:17 958:18 973:8,9,12 creating 751:6 885:20 creation 750:21 753:4,6,11 764:13 765:3 767:17 769:13,15,25 creator 750:22 credit 868:22 cross 725:13 726:15 732:3 | 733:7 734:17 735:1,6 736:8,19 736:23 737:23 783:14 784:16 785:7 839:13 840:13 848:22 849:12 867:10,23 868:5 869:19 870:23 871:2 884:21 920:17 921:1 935:10 939:2 940:20 943:1 946:18 955:24 965:9 972:13,17 973:1 982:1,4 984:1,13 985:2,24 cross's 870:21 crutcher 729:5 730:5 csr 725:20,20,22 981:25 csv 920:15 curious 919:23 currently 932:16 custom 781:9 cut 867:16 d d 732:1 752:5 758:8,8,9,9 922:1 936:8 952:7 970:2 dallas 729:18 dan 814:5 819:20 825:5 daniel 727:8 731:5 733:19 dark 831:14,15,17 831:20 dashboard 815:25 816:9 | dashboards 817:20 data 736:4,11,13 736:21 738:6,14 738:16,19 739:5,8 739:9,14,17,19,20 739:21,22,23 740:4,12,19,20,23 741:9 742:2,6,8,17 743:2,7,14,16 744:2,7,8,12,21 745:9,11,16,19 746:4,7,12,19,21 747:3 755:8 756:10,14 757:25 758:2 761:9,22 762:10 766:13 769:18 771:2,15 771:18 773:25 774:22 776:1,4,6 786:5,11,21 787:3 787:7,11 790:3 792:13,16 797:20 798:8,16,20 800:20,25 801:5 802:7,18 811:2 817:16 819:24 823:22 828:14,18 829:4 830:5,25 831:11,13,16 832:10,12 836:20 838:6 840:17 842:14 844:19 845:8 846:8 847:7 848:1,17 850:6,14 850:15,23 851:7 853:14,24 854:24 855:2,25 859:13 860:4,5,7,19 861:3 862:24 864:17,21 865:2,6,23 866:14 | 869:14 871:22 873:7,15 876:22 876:25 877:2 878:16 883:10,10 888:18 889:10 891:4 903:2,7 904:24 912:1,4,8 912:10,12,14,16 912:18,21 913:1 913:11,14,16,18 914:15,23 916:14 923:17 931:4,4,10 931:22 932:7,10 932:13 939:10 941:24 959:20 966:21 975:18,20 975:23 database 793:17 850:20 897:18,23 923:4 924:22 962:10,14,15,20 969:7,9 970:11 databases 745:7 902:12 903:16 911:9 923:2,9,11 970:17 dataset 797:22 798:10 date 756:17 770:10,12 791:25 820:22,23 834:23 834:24 835:2 852:23 854:1,2,7,9 871:23 922:8,15 923:16 957:3,5,8 957:11 963:7 967:2 972:4,19,20 972:23 973:6 975:6,7,9,10 976:1 976:13 977:20 978:23 981:20 |
|--|---|--|--|

HIGHLY CONFIDENTIAL

[date - detail]

| | | | |
|---|---|---|---|
| 982:16 983:5 985:24 dates 756:22 821:25 822:5 831:5 832:5 847:20 853:10 910:15,17 dating 759:6 888:14 day 762:17 871:21 871:23 872:24 917:15,18 981:21 984:6 days 775:21 875:13 deal 760:16,18 785:10 debugging 769:19 decade 789:23 december 922:10 936:20 938:3,13 decision 882:9 883:3 decisions 835:20 835:21 declare 984:1 decree 764:1,2,9 764:12 978:19,20 978:24 deep 783:24 default 896:2 943:21 976:7 defendant 733:23 734:16 defined 811:12 definition 811:17 813:3 904:17 906:16,25 918:15 925:23 degree 777:23 937:4 | deleting 805:6 demonstrate 868:17 denver 730:10 denying 834:10 depend 804:16 895:25 959:10 966:20 depended 804:11 depending 779:15 803:22 887:23 895:14 919:7 951:14 depends 747:14 777:21 890:16 918:14 925:22 926:6 927:17 932:18 943:15 947:13 967:16 deponent 726:16 732:2 734:11,19 734:25 741:14 742:11 750:12 759:17,22 760:7 760:16 761:3,16 765:12 766:11 767:8,15,21 769:17 774:18 779:11 780:8 787:10,24 788:16 790:7 798:13 799:2,23 802:12 802:23 807:4 808:8 817:6 819:8 821:13 836:2 840:1,4 841:9 842:18 843:19 844:6 845:12 846:21 848:4 853:16 855:9 856:9,17 857:25 | 858:17 859:1,15 860:22 861:10 862:4 863:2,24 865:12 866:1 867:18 868:3,7 870:1 871:10,20 872:3,10,18 873:17 877:11 879:8,21 880:8,25 882:1,13 883:15 885:23 886:9 887:4 888:13,21 889:3,16,24 890:9 890:24 891:10 894:6 896:19 897:14 898:4 899:6 901:5 902:5 902:23 903:10,24 904:9,21 905:5,14 905:21 906:6,24 909:1,11,20 911:8 912:20 913:4,13 913:21 914:10,25 915:13 916:12 927:13 931:3,16 933:2 934:5,17 935:3,18 939:3 941:4,22 946:10 954:9 955:8 960:7 973:20 974:6 deponent's 725:15 deponents 981:7 deposition 725:12 726:15 733:7 734:10,22 736:17 748:2 799:22 802:22 828:5 844:5 867:23 870:12 871:9 888:12 891:7 902:4,21 913:3 | 934:16 935:17 970:1 981:14 982:19,22,24 983:8,10 deprecate 914:5 deprecated 791:6 852:24 910:14 deprecating 853:11 914:8 deprecation 852:21 853:2,6 derek 727:6 describe 758:14 806:25 833:4 863:15 951:12,13 described 805:24 806:17 807:1 833:3 838:24 871:7 917:25 933:18 936:17 963:22 describing 807:24 809:17 862:11,12 863:19 879:8 911:19 description 732:10 738:2 832:8 908:12 946:6 964:2,6,7 descriptive 776:12 descriptor 870:4 design 792:5 designated 735:17 736:15 749:7 860:12 designed 852:17 881:2 882:20 designing 809:12 979:4,7 detail 756:8 761:24 768:14 |
|---|---|---|---|

HIGHLY CONFIDENTIAL

[detail - dim]

| | | | |
|---|---|---|--|
| 774:25 809:25 817:17 819:10 821:5,7 823:12 824:12,18 839:9 851:24 861:20 detailed 773:15 774:9 details 763:2 881:3 882:16 detect 820:16 824:7 846:15,18 849:14 detected 806:1 824:6 837:23 838:23 839:1,4 detection 823:7,8 837:4,5 838:15,18 determinable 854:9 859:4 determination 809:24 877:25 933:3 determine 762:19 767:4 787:1 808:2 829:14 832:16 843:1,14 854:7 856:5 859:9 877:22 878:11 924:14,16 934:20 944:19 954:23 966:18 determined 767:5 803:18 809:8,19 838:17 982:18,22 983:7 determines 819:9 833:15 934:8 979:13 determining 876:23,24 914:5 926:18 | develop 795:25 824:5 developed 763:23 763:25 792:24,25 801:14,17 815:1 820:15 822:14 978:11,15,17 developer 739:11 740:16 743:3 744:14,17 778:8 787:13,14 788:20 791:13,17 792:6 796:2 798:4,14 800:8 801:10,18 803:15,25 804:2,7 804:23 805:15 806:20 809:7,18 816:1 827:5 829:21,24 834:12 835:7 836:3,7,12 836:24 837:7 838:1 841:13,16 841:21 842:9 843:9,12,15,24 855:21 856:11 857:5,9 858:12,21 859:5,6,9 876:8,11 876:11,13 877:19 904:15 910:20 916:2 920:7 924:24 925:2 963:15,23 964:8 developer's 842:15 developers 750:4 790:18 791:5 792:10 795:4,16 795:19,22 796:13 796:19,20,22 797:20 798:8,20 799:4,18,24 801:4 | 803:6 804:24 807:6 808:4 811:20 823:25 824:1,2 825:10 828:19 829:11 833:7,12 834:7 837:23 841:1,18 842:13 847:16 850:19,21 851:6 855:11,16,25 858:2 874:13 903:19 904:23 905:3 908:16 910:8 916:3 developing 822:22 822:22 development 760:7 795:9,23,23 796:2 827:8 926:11,14 device 876:19 879:24 880:4,11 880:12 881:1,7 885:21 886:3,23 886:25 888:24 898:9,13,18 899:1 899:4,13,20,22 900:2,19,21,24,25 901:10,11,24 902:9,9,10,19,24 902:25 903:1,4 devices 876:8 881:15,20,22 882:21 886:1 devops 816:1,10 816:18,20 835:12 dgarrie 731:11 dialogue 873:18 874:9,18,20 875:4 875:14,20 876:9 876:12 877:18,21 | 877:22 879:12,13 880:14 differ 778:6 779:14,15 793:23 differed 804:17 881:3 difference 775:14 775:19 776:25 793:19,25 differences 775:17 775:19 850:10 different 757:21 761:18 776:5 778:4 792:9 794:3 794:4 799:19 801:5 802:16 803:21 804:17 805:2 809:1 811:23 823:6,6 824:11 834:23 855:17 857:6 872:6,7,12,12 875:15,15 879:18 880:1 890:2 892:16 904:12,13 914:22 915:10 923:13 924:4,5 930:25 941:10 951:13 968:20 970:13 972:25 974:3,3 differs 778:5 963:1 difficult 900:13 906:9 954:1 digging 941:24 digits 924:8,9,17 diligence 868:17 dim 928:21,22,23 929:13,17 930:1,8 930:9 931:13,18 |
|---|---|---|--|

HIGHLY CONFIDENTIAL

[dimensions - employee]

| | | | |
|---------------------------|--------------------------|---------------------------|----------------------------|
| dimensions 960:8 | 753:1,9,11,15,18 | dumps 828:18 | egnyte 868:2 |
| direct 868:9 | 753:20,25 754:2 | 830:25 831:11,13 | eight 783:25 838:5 |
| 953:17,25 | 800:5 801:11,20 | 832:10,12 | either 753:7 754:7 |
| direction 981:11 | 805:14 806:3,19 | dunn 729:5 730:5 | 853:3 931:6 |
| directly 842:9 | 807:11,23 808:3 | 733:23 | 955:11 967:4 |
| 889:20 906:2 | 808:11,20 809:9 | duration 806:7 | elaborate 918:2 |
| 932:8 952:25 | 809:13,19,24 | 955:15 | elegantly 877:1 |
| 953:1 955:3 | 819:5,9,14 903:7 | e | element 933:19 |
| discernable 749:5 | 914:17,18 916:8 | e 728:7 732:1,8 | elements 931:12 |
| disciplinary | 921:3 936:5 946:1 | 937:19 938:8 | elia 748:5,13,14,21 |
| 927:10 | 965:9,10,14,16,17 | 944:24,25,25 | 749:1,9,18 751:19 |
| disclosures 881:10 | 966:17 967:11,12 | 952:11 970:6 | 751:20 768:18 |
| 881:11 | document's 753:6 | 982:9,12 983:1 | 783:4 784:10,11 |
| discovery 849:16 | documentation | 985:3,3,3 | eliminate 843:8 |
| discuss 748:21 | 920:7 | earlier 760:13 | email 743:9,13 |
| 749:22 750:5 | documented | 761:19 820:11 | emails 740:25 |
| 784:23 849:13 | 919:18 | 826:8 875:13 | 742:6 929:3,6 |
| 936:7 965:3 | documents 747:23 | 896:20 924:7 | embedded 829:24 |
| discussed 748:19 | 754:7,8,13,17,25 | 934:6 945:20 | 892:5,24 894:9 |
| 749:17,23 754:8 | 756:3 797:12 | 969:25 970:14 | emit 778:22 781:9 |
| 797:2,13 853:25 | 803:15 806:2 | 977:12 | 787:15 |
| 853:25 | 818:25 904:1 | earliest 791:3 | emits 789:4,7 |
| discussing 748:22 | doing 750:10 | 815:14 827:18 | 873:20 |
| 749:11,18,20 | 775:23 782:23 | early 791:3 820:10 | emitted 779:20 |
| discussion 868:15 | 784:19 798:25 | 820:11 879:4 | 788:19,21 789:1 |
| 877:10 883:18,20 | 800:6,9 820:14 | 882:8 885:8 | 789:14,25 790:3 |
| 883:22 938:11 | 826:5 839:14 | 944:12 | 790:22 791:1,9,16 |
| discussions 749:2 | 848:10 892:8 | ease 736:16 965:5 | 792:2,13,16,21 |
| 797:7,9 | 965:8 | easier 798:7 | 794:8 798:4 831:7 |
| display 877:17 | doubt 848:18 | easiest 867:13 | 832:16 838:14 |
| 961:2 | 964:1,5,5 | ecosystem 752:17 | 839:6 878:12 |
| displays 968:17 | downloaded | 752:23 914:20 | 887:7 |
| distinct 937:23 | 921:17 945:19 | edges 787:25 | emitting 794:5,11 |
| district 725:1,2 | downstream | 788:2 793:1 | emma 727:9 |
| 726:1,2 | 931:7 | educated 913:17 | 733:20 |
| dloeser 727:15 | drawn 920:8 | effect 800:12 | employed 750:24 |
| document 725:8 | ds 871:18,20,23 | efficiently 737:25 | 751:1 755:5 805:5 |
| 726:8 749:23,25 | 872:3 922:1,4,6 | effort 832:11,17 | 828:17,21 |
| 750:2,5,13,16,18 | 936:17 | 838:10,11 | employee 755:3 |
| 751:7 752:9,11,15 | due 937:14 969:12 | efforts 807:6,15 | 955:23,25 956:8 |
| 752:19,22,25 | | 832:13 848:25 | 956:11,12,14 |

HIGHLY CONFIDENTIAL

[employee - exactly]

| | | | |
|--|---|--|--|
| 981:18 employees 748:1 766:12 834:9 943:6 954:22 955:2 962:10,13 963:2 968:12,15 968:21,25 employing 827:22 empty 942:7,9 979:23 en 838:3 enable 881:19 906:19 907:7 920:3 enabled 760:3 enacted 836:13 encompassed 745:16 encountered 778:24 780:16 encountering 772:12 endpoint 919:3,3 enforce 827:3 enforced 820:5,18 823:18 927:15 enforcement 927:11,17 engaged 883:6 885:19,20 886:23 914:4 engaging 746:19 747:2 engine 937:16 engineer 769:18 780:13,24 781:8 823:14 951:23 958:18 engineering 824:12,18 827:24 844:10 | engineers 796:3 808:1 824:23 951:23 england 725:15 726:17 733:1 enhanced 765:7 enlarged 921:16 921:17 ensure 801:11,15 801:18 807:6 829:19 830:16 836:20 847:25 ensured 800:20,24 811:1 819:23 828:13 829:3 830:5 840:16 844:18 845:7 846:7 847:7 848:16 ensuring 803:13 enter 875:22 960:3 entered 979:17 entire 905:16 923:19 entirely 755:13 773:2 782:12 786:24 964:12 entirety 774:12 865:18 866:1 904:10 949:11 966:14 entities 736:25 923:10,13 entity 894:9 897:8 923:2,4 937:23 entries 869:21 920:23 922:9,10 935:4 946:3 950:1 956:3 975:6 entry 923:8 948:10,16,16,18 | 948:19 949:2,9 950:13 951:3 969:3,4,6 970:7 971:12,19 972:8 972:11,17 974:23 974:24 975:2,3,25 976:11,23 980:15 enumerate 758:16 762:12 775:18 781:20 enumerated 958:17 enumerates 758:23 762:17 equivalent 874:9 875:11,16 980:8 errata 982:14,16 983:3,5 error 777:20 778:2,11,12,13,15 778:16,17,19,20 778:23,23 779:2,4 779:4,8,13,20,24 780:1,3,3,14,18,20 780:21,23,25 781:3,9,12,14,17 781:20 783:3,19 808:15 errors 779:14,21 781:5 917:20 essentially 742:21 establish 899:16 906:9 established 897:3 establishes 813:7 estimate 757:2 914:11 estimation 809:8 et 810:20 876:24 916:10 | eugene 826:22 evaluate 801:21 801:24 802:1 806:18 878:11 912:17,25 913:10 913:16 914:1 915:9 evaluated 802:19 803:1,2,16 878:18 evaluating 856:11 857:17 evaluation 747:1 802:14 914:7 event 871:25 872:4 896:4 949:4 950:10 events 896:7 910:8 910:11,12,17,23 911:5,9,12,14,23 958:4 everybody 734:1 everybody's 736:9 evolution 822:17 evolve 824:7 evolved 770:3 811:6 814:15,18 827:17 evolves 814:23 ewright 727:18 exact 756:17,22 757:1 778:5 806:14 813:3 816:15 821:25 822:10 831:5 854:7,8 967:1 exactly 756:13 764:4,8 766:25 767:11 772:22 773:11 774:2,7,19 777:21,22 799:5 803:1 804:9,15 |
|--|---|--|--|

HIGHLY CONFIDENTIAL

[exactly - facebook]

| | | | |
|--|---|--|--|
| 805:12,19 806:5 817:16 821:22,22 822:16 824:18,25 826:15 827:2 832:25 837:17 927:16 941:24 954:17 958:13,13 962:23 964:12 966:18 967:14 969:12 976:16 examination 732:2 735:4 examined 735:2 example 740:25 742:24 743:10 751:15 769:19 777:10 785:2 788:25 789:6,12 790:9,11,21 791:2 791:11 792:3 793:9 803:12 804:21 805:9,17 808:13 811:4,10 811:25 814:17 815:2,14 819:5 820:2 829:16,18 842:18 864:6 876:13 879:22 880:11 887:25 890:9 896:1,8,10 896:12 907:17 913:14 915:15 918:22 920:22 924:18 936:18 941:10 950:1,8 958:19 976:17 examples 789:3,19 790:8,25 791:8 792:12,15,20 801:7 804:14,19 805:1,4,17 807:16 | 812:5 823:24 825:13 828:24 829:1,17 845:13 845:16,25 846:13 846:16,23 915:14 916:7 excel 732:11,15,18 732:21 743:10 867:15 957:11 968:18 969:1 974:13 excelified 957:13 excepting 850:14 exception 739:7 745:19 782:11 excerpt 920:14,19 922:9 946:1,20 964:23 966:16 967:23 excerpted 933:13 excerpting 964:9 exchange 906:18 exchanged 741:19 743:8 899:12 exchanges 746:19 747:3 exclusively 952:25 excuse 943:11 966:7 execute 934:20 executed 984:6 exercise 967:19 exhibit 732:11,15 732:18,21 867:1,5 867:8,23 868:3 873:3 920:10,14 920:14 921:3,11 933:12 934:25 945:8,13,14 964:15,19,20,22 979:8 | exhibited 752:10 753:2 exhibition 750:13 exhibits 867:22 exist 766:20 768:3 774:12 804:4 806:21 817:1 818:25 837:22 881:24 882:2,4 910:11 929:21,23 931:17 960:4,18 960:19 961:9 962:9 974:16 existed 768:9,16 780:10 801:11,15 802:9,14 803:14 803:19 806:19 808:3 809:19 822:5 833:21 842:20 855:16,19 875:7,12,17 932:2 944:17 961:7,22 963:6 existence 774:2 781:7 794:15 801:20 806:10 807:19 815:11 838:23 846:22,25 866:20 874:10 existing 806:3 930:14 932:1 exists 777:16 818:24 842:20 866:5 919:13 927:20 930:23 960:18 961:1,3 963:20 977:6 expand 945:22 expecting 812:12 experience 737:24 748:14 876:14,18 | 879:25 880:12,16 880:21 902:7 943:14 962:17 experiences 744:4 782:24 expert 799:10 800:2 803:3 899:10 901:13 902:6,13 935:19 962:16 expiration 975:24 976:2,4,13,16,20 976:23 expire 976:7 977:21 explain 793:13 829:12 830:2 833:12 876:22 883:12 904:16 918:20 957:6 979:20,21 explained 880:18 880:18,21 906:17 explains 952:4 explanation 911:1 969:18 explicitly 898:20 exposed 859:3 expressed 779:15 extent 745:15 810:11 878:24 891:7 967:15 external 924:15 extra 746:1 f f 939:13,15 955:22 955:24 956:3 971:11 973:2 facebook 725:4 726:4 729:4 730:4 733:9 735:17 |
|--|---|--|--|

HIGHLY CONFIDENTIAL

[facebook - facility]

| | | | |
|-------------------|--------------------|-------------------|--------------------------|
| 738:6,20 739:5,11 | 822:9 825:23 | 890:12,14 891:3,5 | 920:2,4,7 923:4,19 |
| 739:13 740:5,11 | 827:11 828:13,14 | 891:10,13,16,16 | 924:2,2,12,13,19 |
| 740:15,18,22 | 829:3,5,11,13,18 | 891:19,22,25 | 925:5,7 929:18 |
| 741:2,9,15,19 | 830:5,6,16 833:6 | 892:1,2,6,8,11,13 | 932:9,25 934:13 |
| 742:1,1,12,16 | 833:12,15 834:5,9 | 892:18,20,25 | 943:6,12,22 944:2 |
| 743:2,3,6,13,16 | 834:23,25 836:19 | 893:3,3,10,17,19 | 944:4,9,14 945:1,6 |
| 744:1,7,12,14,17 | 836:21 837:10 | 893:23,23 894:4,8 | 945:16 952:22 |
| 744:20 745:8 | 838:6,17,25 | 894:11,13,14,16 | 953:21 954:22 |
| 746:4,12,18 747:1 | 840:17 841:23,23 | 894:17,20,22,25 | 956:8,10,13 |
| 748:1 749:4 | 842:12,22 843:2,5 | 895:2,3,5,7,11,12 | 960:17 961:25 |
| 750:24 751:1,2 | 843:10,13 844:18 | 895:13,15,17,18 | 962:13 963:4,24 |
| 752:23 755:3,5,7 | 844:20 845:7,9 | 895:21,24 896:3,3 | 964:24 968:12,15 |
| 755:12,17 756:7 | 846:7,8 847:6,8,10 | 896:10,13,15 | 969:24,24 977:4 |
| 757:16,21 758:17 | 847:15 848:1,16 | 897:4,6,6,9,16,23 | 977:17,24 978:6 |
| 758:19,24 760:3 | 848:19,25 850:6 | 898:7,9,11,17,18 | 978:12,15 982:3 |
| 762:22 764:19 | 850:15,22,22 | 898:18,23 899:1 | 985:1 |
| 766:7,8,12 767:18 | 851:6,15,18,20 | 899:12,16,20,25 | facebook's 725:12 |
| 767:21 768:20 | 855:12,24 856:5 | 900:1,7,10,11,18 | 752:17 761:22 |
| 770:13 771:3 | 856:10,12 857:12 | 900:19,21 901:8,9 | 776:1,4 777:11 |
| 773:10 774:14,19 | 857:16,22 858:1,4 | 901:10,15,15,16 | 782:17 792:5 |
| 777:15 779:2,3,7 | 858:13,18,23 | 901:17,18,19,24 | 796:6 799:3,11 |
| 779:11,19,19,25 | 859:11,17,21,24 | 901:25 902:8,9,18 | 800:2 809:8 |
| 780:17 781:3,5,11 | 860:7,12,18,23 | 902:25 903:15,19 | 817:16 843:4 |
| 781:13,16 787:7 | 861:2,25 864:19 | 903:22,25 904:5 | 850:20 860:4 |
| 787:11,12,14,18 | 865:1,7,18 866:13 | 904:10,15,24,25 | 861:15 862:23 |
| 787:20 788:6,20 | 867:9 869:14 | 905:2,5,7,8,12,19 | 863:25 878:18 |
| 789:4,6 791:13 | 873:15,17,25 | 906:4,10,11,12,14 | 899:11 900:20 |
| 792:6,11,23 | 874:3,7,12,14,17 | 906:20,21 907:4,8 | 901:13 902:1,11 |
| 793:16,17,18 | 874:19,20,21,23 | 907:10,12,13,17 | 903:2 916:14 |
| 794:1,5,9,11,13 | 874:23,24,25 | 907:20,24 908:1,6 | 918:5 919:16,18 |
| 795:2,8,19,24 | 875:1,3,7,11,16,25 | 908:9,15,18,20,22 | 919:20 922:21,23 |
| 796:1 798:4 | 876:9,12,14,17,18 | 909:2,7,8,15,16 | 923:1,9,10,16 |
| 799:24,25 800:10 | 876:21,23 879:23 | 910:4,9,20,22 | 924:6,21 925:9 |
| 800:15,20,24,25 | 879:24 880:4,6,10 | 911:4,8 912:2,4,8 | 926:3 931:3,22 |
| 801:7,25 802:20 | 880:12,13 881:1,6 | 912:9,11,15,17,18 | 932:15,19,22 |
| 803:1,5,17,18,24 | 881:7,9,20 883:5,9 | 912:21,25 913:1,9 | 933:23 959:4 |
| 804:21 805:5,11 | 885:9,17,20,23 | 913:10,15,16 | 962:6 969:7,8,12 |
| 805:22 806:18 | 886:2,5,24,25 | 914:4,8,21 915:7 | 969:19 970:10,15 |
| 807:1 808:1,2 | 887:4,9 888:8,14 | 915:17,18,22,24 | 970:17 |
| 811:1,3 813:15 | 888:17,25 889:4,9 | 916:2 917:6,12 | facility 952:14 |
| 815:5 819:23,24 | 889:10,13,18 | 918:2 919:10 | |

HIGHLY CONFIDENTIAL

[facing - format]

| | | | |
|---------------------------|---------------------------|---------------------------|----------------------|
| facing 836:12 | feel 765:16 847:21 | 894:13 897:25 | 789:18 790:6 |
| fact 771:6 817:11 | 881:8 | 910:19 917:5 | 795:11 798:12 |
| 856:17,18 858:14 | field 952:4 957:15 | 932:25 933:4 | 799:1,22 802:10 |
| 888:4 897:7 898:5 | 963:22 979:17,23 | 936:4,18 946:8,16 | 802:22 806:22 |
| 910:2 924:12 | 980:16 | 950:15 957:18 | 808:7 816:15 |
| 950:22 | fields 758:23 | 961:13 963:8 | 817:5 819:7 |
| factors 804:11,13 | 786:8 788:2 793:1 | 965:2 967:23 | 820:10 821:12 |
| 804:18 825:7,15 | 857:6 924:22 | 973:6 | 832:24 836:1 |
| 825:17,18 877:24 | 925:16 930:11,12 | five 869:17,21 | 841:8 842:16 |
| 932:18 | 971:10 | 870:3 871:15 | 843:18 844:5 |
| fair 789:19 | fight 848:11 | flagged 837:5,7 | 845:11 846:20 |
| fairly 965:2 | figure 767:13 | floor 731:8 | 848:3 853:15 |
| falls 860:14 | 819:13 | flow 876:22 877:2 | 855:8 856:8 |
| familiar 767:9 | file 920:15 945:14 | focus 740:15 741:6 | 857:24 858:16 |
| 776:10 809:11 | 966:20 967:3 | focused 738:5 | 863:23 865:11,21 |
| 883:4,7 901:21 | 973:16,25 | 743:3 | 865:25 871:9 |
| 903:17,21 904:18 | files 920:18,21 | focusing 802:3 | 873:16 879:20 |
| 921:2 923:20 | filled 963:18 | folks 854:1 | 880:7,23 881:25 |
| 943:2,3 944:1,3 | filling 951:20 | follow 785:17 | 882:12 883:14 |
| 946:19,22,22 | final 746:25 | 839:20 845:4 | 885:22 886:8 |
| 959:23,25 965:9 | finance 751:9 | 849:5,15 851:2 | 887:3,15 888:20 |
| 965:10 | financial 914:7,11 | 853:9 854:3 | 889:2 890:8,23 |
| familiarizing | financially 981:17 | 878:24 922:21 | 894:5 896:18 |
| 867:17 | find 764:11 766:8 | follows 735:3 | 898:3 899:5 |
| far 749:5 832:8 | 784:9 804:2 | 982:8 | 904:20 905:4,13 |
| 875:20 888:15 | finding 889:24 | fonti 728:5 733:18 | 905:20 906:23 |
| 942:4 | fine 749:14 783:15 | 735:10 | 908:25 909:10 |
| favorable 873:1 | 868:12 | foregoing 981:5,7 | 911:7 912:19 |
| fb 732:13,16,19,22 | finish 839:22 | 981:11,13 984:2 | 913:2,12,20 |
| 920:16 945:17 | firm 733:17 735:9 | forever 959:15 | 914:24 915:12 |
| 964:24 | first 746:3 762:4 | forgot 748:7 | 923:13 927:12 |
| fbid 969:2,23 | 770:8,10 777:9 | form 759:19 760:6 | 931:2,15 933:1 |
| 970:6,8,9,14,16,20 | 778:15 782:16 | 760:15,21 761:1 | 934:4,16 935:2,17 |
| 971:4,6 | 794:17 797:6,10 | 761:15,18 765:11 | 935:20 939:1 |
| fbml 791:4 | 797:19 814:23 | 766:10 767:7,20 | 943:14 954:7 |
| features 833:8,9 | 815:3,4 822:1 | 768:2 769:16,20 | 955:7 960:6 961:9 |
| 833:13,16 907:9 | 828:2 830:24 | 774:16 776:23,23 | 962:9,19 965:24 |
| 978:3 | 840:23 841:18 | 777:18,21 778:1 | 968:24,24 973:19 |
| federal 981:14 | 869:22 877:15 | 778:12,13 779:10 | 974:5 |
| 983:1,8,9 | 879:3,5,10,14 | 779:12 780:6 | format 740:11 |
| | 882:18 889:8 | 787:23 788:15 | 744:6 791:6 |

HIGHLY CONFIDENTIAL

[format - go]

| | | | |
|--|--|---|---|
| 921:21 924:13 formats 740:11 744:6 formed 940:4 941:13 forms 770:7 815:24 forth 981:7 forward 769:7 817:24 850:1 found 805:3,23 foundationally 906:10 four 745:23 869:23 936:19 fourth 829:20 fql 851:3,4,5,8,9 851:11,12,13,16 851:19,20,24 852:1 853:7,12,16 853:23 854:17,24 855:1,4,11,13,15 856:1,3,6,13,15,19 856:21 857:3,5,9 857:17,23 858:6,8 858:15,18,24 859:3,6,8,12,16 860:20 861:3,6,7,8 861:11 873:7 fragment 791:20 frame 815:11 francisco 729:10 frcp 983:1 free 849:15 friend 908:19 friend's 864:16 865:5 941:12 friends 864:17 865:6,9 889:21,22 905:9 907:19,22 908:4,19,23 909:3 | 915:23 front 962:19 973:15 fronted 923:1 970:17 ftc 764:1,8,12 978:19,20,23 full 763:9 776:15 780:9 882:16 929:13 930:12 941:22 958:12,12 967:15 973:14,16 974:13,18 fully 755:2 772:3 776:10 781:23 901:1 939:9 function 753:13 764:16 893:5 937:15 954:19 957:16 functionality 823:11 841:13 further 785:3 849:16 957:12 981:13,17 | general 731:16 756:18 769:6,10 782:24 807:15 830:22 848:5 850:12 895:15 897:17 900:25 911:3 923:16 926:21 927:21 937:8 951:18 generally 736:18 741:15 777:3 778:15,22 779:2 780:23 810:17,22 811:24 812:10,12 816:8 849:13,22 861:14 875:16 891:1 895:23 898:4 943:18 968:22 generated 815:20 951:22 952:2 962:22,24 gestation 820:11 getting 737:12 857:1 gibson 729:5 730:5 733:23 gibsondunn.com 729:12,20 730:12 730:19 give 734:22 748:2 748:4 751:10,11 757:1 770:3 772:19 773:16 780:9 782:5,21 783:21 784:2 790:8,9 804:14 805:17 808:22 809:2 810:17 822:15 835:22 836:15 845:13 | 848:4 861:11 872:21 877:9,11 881:16 889:25 890:3,19 901:6 902:14 913:13 915:3,5,13 925:25 926:9 928:7 given 800:3 803:12 813:3,17 822:20 845:16 846:14,17 847:20 847:20,21,22 878:5 917:15,17 917:17,17 918:7 922:13,14 923:2 923:10 926:15 928:5 936:16 947:23 949:3 954:12,20,21 955:10,20 956:14 958:21 970:24 971:1 975:11,21 976:7 981:12 gives 799:12 giving 844:15 845:24 900:13,16 go 747:19 748:25 749:1 759:20,20 763:21 780:7 782:15 784:15 785:19 793:8 796:16 819:18 830:19 833:22,25 840:6 841:20 845:2,2 847:12 850:9,17 851:4 861:9 867:15 874:16 877:9,25 878:13 883:23 884:1,2,11 891:8 893:15 895:17 |
| | g g 944:25 956:15,18 956:22 957:5 972:18 ga 901:19 gain 841:9 games 752:17,23 914:20 garrie 731:5 734:2 734:3,7 849:24,25 868:23 869:5,10 883:25 884:4 901:2,6,7 948:20 gates 944:23,24,25 945:2 | | |

HIGHLY CONFIDENTIAL

[go - help]

| | | | |
|--|--|---|--|
| 897:1 904:8 925:17 932:5 935:21 939:2 940:16 942:19 948:14,22 954:8 958:19,22 967:13 967:19 968:8,11 980:14,21 goal 845:12 881:5 881:19 883:15 goals 824:13 883:17 goes 767:16 876:22 933:10 going 735:10,13 737:24,24 738:1 740:9 744:16 759:18 762:7 769:6 782:3 783:6 800:17 818:23 826:7 828:22 839:10,15 850:5 851:4 857:20 861:10 864:25 867:13,19 868:9 868:13 870:10 879:17 884:8 886:20 890:19 895:7 900:25 906:24 917:2,2 933:12 934:5 941:2 942:17 945:13 956:16 965:5 good 733:16 734:4 780:12 783:7 800:14 973:23 google 901:23 gotcha 847:11 govern 961:3 | gr 936:23 938:14 grant 789:10 873:19 973:21 granted 841:3,5 841:23 875:5 878:15 943:13,16 950:14 952:16,17 961:4,7,21,23 965:19 966:3 971:16 972:3,5,12 972:15,23 973:6 974:8,15 976:6,19 977:2,6,13,15,19 grants 878:1 973:17 974:1 graph 739:11 741:5 744:11,15 786:4 788:1 792:4 792:7,24 794:18 795:5,6 812:8,13 850:8,23 851:10 851:12 852:16 853:4,4,21 856:4 858:1 873:9,10,11 873:13,22 878:10 897:17 908:11,13 908:14,22 911:23 918:22,23 919:1 923:4 936:16 939:21 969:7,8 970:10 great 737:21 839:23 gross 827:1 group 947:24,25 950:23,25 951:19 952:11,12,15,18 952:22 954:10 955:4,11 grouped 954:3,14 954:25 | groups 950:20 952:14,19,20 953:10,11,17 guess 854:20 927:19 guidance 901:5 h h 732:8 876:2 957:24 974:21 985:3 habit 739:16 hand 734:18 775:1 777:1 835:9 854:2 handled 982:8 handwritten 747:11 hannah 730:6 733:24 happen 880:19,22 happened 803:18 803:21 824:19 899:8 953:13 happening 826:13 832:23,23,24 833:1 834:22 952:4,5 977:22 happens 877:16 879:15 948:22 happy 785:10,19 849:10,18 850:17 850:17 877:5 940:25 945:15 957:2 967:9 hard 741:17 742:25 757:1 761:3,17,17,24 769:3 770:3 772:15 780:8 796:5 797:19 810:1,2 817:17 822:15 823:8 | 832:16 853:20 881:16 889:24 913:24,25,25 914:25,25 915:2 950:17 hc 732:12 head 782:10 807:21 810:1 852:24 854:9 header 922:1 936:9 939:15 946:2,16 948:4 955:22,25 957:24 960:15 967:23,24 974:22 975:24 979:9 heading 974:21 healthy 734:5 hear 883:24 heard 815:15 818:12,15 831:14 831:15 849:25 903:24 947:1,4 heaton 748:6 749:22 750:6,15 750:19,20,23,25 751:16,17 753:23 754:9 heavily 779:23 help 747:8,13 749:6 753:14,24 759:15 789:15 795:20 812:10 834:6 854:19 863:22 876:10 877:14 885:12,12 886:9 889:16 915:5,14 925:1,24 927:3 935:20,24 940:23 978:4 |
|--|--|---|--|

HIGHLY CONFIDENTIAL

[helped - implemented]

| | | | |
|---------------------------|--------------------------|---------------------------|--------------------------|
| helped 754:1 | 911:19,21,21 | id's 863:18,18 | ids 786:17 788:19 |
| helpful 877:12 | hitting 812:1,21 | idea 810:18 883:9 | 788:22,23,23 |
| 926:9 935:7 | 812:21 | 906:18 907:1 | 789:25 791:16 |
| 942:11 | hive 774:1,11,15 | 924:16 948:25 | 793:10,12 794:6,8 |
| helps 800:13 967:7 | 775:15,20 776:4,6 | 949:3 | 794:10,12,14,15 |
| hendrix 803:4 | 806:13 807:20 | identification | 795:2,5,9 796:1,3 |
| 827:6 835:14 | 869:13 871:22 | 749:3 867:2 | 796:24 797:5,8,16 |
| 844:7 848:19 | 872:1 898:1,4 | 920:11 945:9 | 797:18,23 798:1,2 |
| hereto 867:3 | 903:12,13 911:10 | 964:16 | 798:3,5,5,6,10,13 |
| 920:12 945:10 | 916:14,20 922:6 | identified 752:9 | 828:18 829:23 |
| 964:17 | 928:4,24,25 | 800:16 810:8 | 830:11,11,25 |
| hey 868:23 | 930:25 931:3,8,10 | 816:10 844:16 | 831:7,10 832:1,10 |
| high 741:14 | 931:22 932:10,24 | 863:8,8 886:21 | 832:12,14,18,19 |
| 742:12,13 743:5 | 933:6 937:2 | 919:24 920:20 | 836:22 837:6,24 |
| 763:5 774:24 | hoc 931:7 | 946:24 958:4 | 838:13,23,25 |
| 792:23 807:18 | hope 734:5 737:25 | 969:17 | 839:5,8 866:22 |
| 808:8,22 809:2 | 738:1 | identifier 863:19 | 899:21,23 902:1 |
| 812:2 813:5 | hopefully 799:12 | 900:5,8,22,24 | 902:19 922:21 |
| 814:15 815:18 | 799:12 926:21 | 901:11 902:10 | 923:3 924:1,2,2,11 |
| 816:11 817:2 | hour 783:7 922:14 | 903:1 922:20 | 924:20 925:12 |
| 823:9,15 839:4 | 936:16,19 938:12 | identifiers 900:25 | 930:5 951:4,5 |
| 877:12 878:21 | 942:18 | identifies 762:8 | 956:11 959:21 |
| 907:1 937:4 | hours 938:3 | 956:11 963:14 | 960:4,9,11 |
| highlight 869:9 | hregan 730:12 | 972:14 | imagine 825:21 |
| highlighted | html 876:16 | identify 733:14 | immediately |
| 869:18 957:15,20 | http 778:16,19,20 | 741:1 764:18 | 784:20 |
| 980:19 | 778:23 779:1,1,4,7 | 767:23 801:4 | impact 752:16,18 |
| highly 725:10 | 779:8,20,24 780:3 | 810:10 823:2 | 752:20,22 914:7 |
| 937:17 | 780:3,14,20,21 | 824:15 838:24 | 914:11,19 |
| historical 965:22 | huawei 886:13,21 | 849:1 862:23 | impetus 765:3 |
| history 751:15 | 886:23 887:1,25 | 864:11,19 865:8 | 796:23 797:1,4 |
| 756:17 900:20 | human 951:16 | 902:18 925:20 | implementation |
| 977:12 | 952:1 | 929:17 932:6 | 823:13 830:23 |
| hit 777:1 789:24 | hundreds 836:9 | 934:23 954:15 | 866:12 |
| 869:6 935:6 | hypothetical | identifying 786:20 | implemented |
| hits 776:22 777:3 | 802:11 941:21 | 788:24 826:4 | 762:24 769:18 |
| 818:8,9 862:5,6,14 | i | 863:20 948:7 | 779:17 813:22 |
| 862:15,19,19 | i.e. 949:13 | 969:15 | 820:8 822:1,19 |
| 863:3,6 865:13 | ian 731:16 733:24 | identity 861:25 | 825:1 832:2,19 |
| 866:21 887:11,12 | id'ing 969:10 | idfa 899:25 900:3 | 835:18 836:14 |
| 887:20,22 911:13 | | 900:4 901:10,17 | 840:21 911:23 |

HIGHLY CONFIDENTIAL

[implementing - information]

| | | | |
|-------------------------------|---|---------------------------------|----------------------------------|
| implementing 780:13 | incoming 919:13 919:19 934:21 | individualized 953:12 | 837:18 838:5,8,11 841:4,10,11 |
| implied 835:23 | incomplete 802:10 | individually | 842:24 843:2,14 |
| imposed 805:3 | 941:20 | 920:18 | 844:12 846:15,18 |
| impossible 742:14 | increased 924:7 | individuals 838:25 | 847:16 848:17 |
| 742:19 799:18 | index 762:14 | 864:21 866:13 | 850:11,20 851:22 |
| 967:5 | 919:10 924:19 | 951:19 | 852:1,8 854:15,17 |
| impracticable | 935:9 | inform 844:12 | 855:13 856:3,6,13 |
| 967:5 | indicate 810:16 | information 739:5 | 856:15 857:4,10 |
| impressed 868:18 | 893:16 924:10 | 740:5,12 741:3,20 | 857:13,15,23 |
| improve 753:24 | 926:3 936:19 | 743:11 744:21 | 858:5,9,12,14,20 |
| 978:11,14 | 955:10 975:15 | 746:4,12 747:2 | 858:24 859:3,7,9 |
| improved 753:18 | 976:8,12 979:24 | 750:9 756:1,2 | 859:19,22 860:2 |
| improving 761:10 | indicated 844:25 | 758:17,20,25 | 860:12,13,19 |
| inappropriately | 849:11 922:14 | 759:5,7 760:17,18 | 861:2,19 862:1,20 |
| 824:16 829:20 | 941:17 951:2 | 761:5 762:12,15 | 863:18,19,21 |
| inception 788:21 | indicates 778:23 | 762:20 763:13,15 | 864:20 865:9,9 |
| 793:11 875:8 | 926:24 927:7 | 764:19 766:9,18 | 866:3,16 871:15 |
| include 736:20,25 | 971:18,20,22 | 767:3,6,19 768:1 | 872:20 873:19,23 |
| 739:16 746:6 | 979:11 | 768:10 770:14,25 | 875:6,23,23 876:1 |
| 758:19,25 767:24 | indication 810:6 | 771:2 772:7,20,23 | 876:18,21 877:6 |
| 786:14,19 888:23 | indicative 905:23 | 772:25 773:3,6,9 | 877:17 878:12 |
| 890:10 898:5 | 909:23 910:3 | 773:11 774:10,14 | 879:6,19 880:5,6 |
| 911:14 925:12 | 951:15 972:11 | 775:15,16,20 | 883:13 885:9,17 |
| 929:21 930:14 | 975:3,22 | 777:19,22 778:7 | 886:17 887:1,9,19 |
| 951:7 972:19 | individual 783:1 | 786:7,14,17,20,25 | 887:24 888:5,23 |
| included 749:3 | 786:5,21 787:2 | 787:2,15,17,21 | 889:1,10,13,19 |
| 755:17 782:8 | 789:22 838:25 | 788:6,9,13,17 | 890:14 891:14 |
| 787:2 862:6 908:9 | 857:13,15,22 | 789:1,3,7,11,14 | 892:1,19 893:5 |
| 908:11 982:14 | 858:5 861:25 | 790:13,17,22 | 894:3 895:9 |
| 983:3 | 862:14,24 863:10 | 791:1,5,9 792:2,11 | 896:15 897:3,10 |
| includes 745:23 | 863:12,20 883:5 | 792:18,21 793:5 | 897:18 898:8,21 |
| 786:16 805:6 | 886:7,10 888:7 | 799:4,19 800:1,21 | 899:10,12 903:6 |
| 874:23 957:5 | 891:4 892:20 | 806:16 807:10 | 903:12 904:22 |
| 966:14 968:23 | 905:12,19 909:15 | 810:18 813:21,21 | 905:2,11,18 906:1 |
| including 740:19 | 910:25 911:6 | 816:16 817:10,25 | 906:3,11,11,13,15 |
| 746:16,21 911:10 | 913:18,18 919:25 | 818:5 824:19,21 | 906:20,21 907:2,4 |
| 924:23 931:19 | 920:23 925:5 | 827:3 829:13,15 | 907:8,13,19,24 |
| 947:21 | 954:16 | 829:19 830:1,16 | 908:5,8,21 909:1,4 |
| inclusive 931:11 | individual's | 831:20,22 835:8,9 | 909:6,14 910:2,21 |
| | 786:11 967:6 | 835:22 836:15 | 910:22,24 911:4 |

HIGHLY CONFIDENTIAL

[information - involved]

| | | | |
|------------------------|----------------------------|---------------------------|---------------------------|
| 911:24 912:3 | 931:4,4 933:23 | 812:16 813:9,13 | internally 756:3 |
| 913:19 915:8,11 | 939:22 | 813:20 814:1,14 | 797:2 896:16 |
| 916:9,13,20,25 | initially 965:19 | 819:16,22 824:3 | 921:21 961:25 |
| 917:15,23 918:9 | initiated 953:22 | 824:23 826:3,16 | 962:6 963:8 |
| 918:13 919:15 | 956:8 978:14 | 826:19 828:12 | 968:14,17 |
| 920:25 921:2,12 | inquiries 857:17 | 829:3 830:4 | internet 777:17 |
| 921:23 925:8,10 | inquiry 819:19 | 836:19 837:15 | interpret 890:21 |
| 925:14 926:2,22 | 847:5 | 840:16 842:23 | 935:24 |
| 926:23 927:6,14 | ins 829:24 836:23 | 844:18 845:7,17 | interpretation |
| 927:16,21,25 | 837:25 | 846:6 847:6 | 890:16 |
| 928:2,4,8,12 | inside 766:7 | 848:22 849:14 | interpretations |
| 929:22,22,25 | 903:22,25 904:5 | intend 747:12 | 890:2,6 |
| 930:14,17,24 | 904:10 919:20 | 823:10 940:18 | interpreting 750:3 |
| 931:11,13,17,18 | 951:17 978:12,15 | 946:12 | interrogatory |
| 931:21 932:23 | insignificant 796:4 | intended 946:12 | 886:18 |
| 933:5,8,20 935:24 | instance 924:10 | intensity 937:15 | interrupt 851:1 |
| 937:20 938:9 | 951:3 960:3 968:6 | intent 762:25 | 861:6 |
| 940:8 941:7,16,19 | 976:12 | interact 926:16 | interrupting |
| 942:3,12 947:9 | instituted 833:19 | interacted 742:22 | 796:17 |
| 950:6 952:5 955:5 | 833:23 836:16 | 930:21 | intimately 743:22 |
| 956:21 960:23 | 852:15 944:5 | interacting 794:18 | 765:14 |
| 961:6,22 963:17 | institution 841:19 | 804:25 | introduced 789:9 |
| 963:21 965:3,15 | 846:23 | interaction 898:20 | 840:23 841:18 |
| 966:14 968:17,19 | insured 744:20 | interchangeably | 867:4 920:13 |
| 968:23 969:9,12 | integrate 875:1,3 | 777:5 | 945:12 964:18 |
| 969:14,16,21 | integrated 787:16 | interested 981:18 | 978:10 |
| 970:3,19 971:23 | 891:13 | interface 962:15 | invalidation 896:4 |
| 971:25 972:10,25 | integration 783:25 | intermediary | 896:6 |
| 973:1,17 974:4 | 885:11,13 886:2,4 | 954:10 | investigate 768:16 |
| 976:3,20 | 886:6,14,15 887:2 | internal 745:8 | investigation |
| informations | 887:5 888:1,9 | 751:15 766:13 | 769:20 837:8 |
| 791:20 | 904:25 | 782:17 787:21 | 838:4 |
| informed 744:18 | integrations 881:1 | 878:18 897:10 | invite 737:12 |
| infrastructure | 881:15 882:19 | 902:1 907:23 | involved 750:21 |
| 758:6 761:9,22 | 883:1 884:20,24 | 910:24 916:9 | 751:6 753:8 |
| 765:8 766:14 | 885:5,24 888:18 | 919:17,19 924:12 | 754:25 755:15,20 |
| 768:25 769:2,22 | 888:19,24 | 924:14 925:9 | 756:1,6,11 757:13 |
| 770:2,15 771:2 | integrity 744:24 | 926:3 943:5 959:4 | 757:24 760:9 |
| 776:1 836:12,13 | 800:19,23 801:3 | 959:6,10,12 | 765:14 771:4 |
| 903:2 918:6 | 803:10 810:8,25 | 961:11 962:10 | 772:16 796:3 |
| 922:22,24 923:17 | 811:5,17,21 | 963:23 969:13 | 805:19 807:14 |

HIGHLY CONFIDENTIAL

[involved - I]

| | | | |
|--|---|---|--|
| 808:24 814:21 815:9,16,23 820:25 822:4 825:15 826:2,3,12 826:15,19,24,25 827:14,24 831:19 834:9 835:15 844:11 845:15 859:2 864:8 866:8 915:19 979:3 involvement 755:23 770:5 772:5 involves 755:11,14 788:18 789:8 ios 882:23 900:6,9 901:15 ip 823:20,23 825:10 ipsum 809:12,15 809:21 issue 769:5 810:17 848:24 issues 849:19 iterations 791:3 | joined 772:17 jonathan 827:1 jsc 725:6 726:6 june 725:16 726:18 733:1,6 848:14 981:21 982:2,4 k k 963:14 967:22 979:9,17 keep 828:22 keller 727:5 733:20 kellerrohrback.c... 727:15,16,17,18 kept 864:19 865:8 kicked 823:4 825:25 827:12 927:7 kind 739:20 752:18 753:13 770:16 772:20 799:8 812:11,11 814:6 815:14,20 826:11 839:11,15 877:6 905:18 916:13 969:9 kinds 796:7 822:22 827:6 925:10 knew 771:16,21 771:21 783:5,5,5 787:5 know 742:12,15 742:20 743:8 744:1 752:13 753:10 755:6,16 756:14 759:1,5,7,9 759:12 760:22 764:21 765:9,20 766:16 769:22 | 770:23,25 771:1,9 771:11,14 774:10 775:4,5 776:5 781:7 782:14 783:17,23,25 784:7 785:2 786:24 789:21 792:24 793:6 796:5,6,23 797:13 799:8,24 800:5 806:5,8,11,14,14 807:9,14,17,17 808:10,24 809:16 810:19 811:20 813:22 814:6,25 815:3,13 816:2,3 817:10,18 818:4 820:7 821:1,4,17 821:25 822:2,14 822:18 823:11 824:4,9,11,24 825:23 826:12,15 827:8,14,18,23,25 828:9,24 831:9,10 831:18 832:3,11 832:17 835:3,8,10 837:9,13,17,20,22 838:5,7,9,16 839:12,15 842:1 848:11 849:10 850:12 852:19 853:22 854:16,24 855:22 858:10,13 858:22 860:18 861:1 862:16 870:8,22 871:5,14 877:13 878:24,25 878:25 880:16,17 881:14,18 882:3,9 885:19 888:8,16 891:8 892:8,13 | 893:3 899:7 902:8 903:5,15 910:16 911:11 913:18 919:2 923:25 928:21 930:7,23 931:9,23,25 933:7 937:11,11,19 938:18,21 939:16 940:15,18 945:1 948:6,11 949:18 951:1,12 952:8,12 953:3,4,21 954:20 958:8,12,14 959:14,16 961:13 962:21,23 963:17 964:10 965:1,22 966:2 967:7,9,9 968:1 969:4,14,21 970:3,8 971:13 972:20 973:9,11 973:14 974:24 976:2,21 977:24 978:6,13,20,23 979:1,1,2,5,10,16 980:6,7 knowing 956:13 973:3 knowledge 810:5 821:18 882:2 knowledgeable 762:5 known 758:6 773:25 833:8,10 840:22,24 858:10 875:10,15 908:11 937:1 I I 725:20 726:20 928:23,23 944:24 944:25 981:1,24 |
|--|---|---|--|

HIGHLY CONFIDENTIAL

[l.l.p. - logging]

| | | | |
|---------------------------|---------------------------|---------------------------|--------------------------|
| l.l.p. 727:5 | 792:23 807:18 | link 786:20 798:16 | 956:9,25 957:1 |
| language 796:9,12 | 808:8,22 809:2,25 | 798:20 799:19 | 959:17 962:3 |
| large 760:17,18 | 810:2 813:5 | linked 767:25 | 971:15,19,22 |
| 789:24 809:1 | 816:11 817:17 | 809:20 947:23,24 | 972:8,8,10 975:2,3 |
| 816:3 867:14 | 819:10,17 821:4,6 | list 778:20 780:18 | loggable 958:4 |
| 920:18 931:23 | 823:9,15 824:11 | 780:23 781:3,7,11 | logged 768:19,24 |
| 967:4,12 | 824:18,21,24 | 781:14,17 793:8 | 769:1,4,14,23,25 |
| larger 946:1,7 | 839:4,8 851:7 | 815:21 816:2 | 770:6,11,19,21,22 |
| late 772:17 797:13 | 877:12 878:21 | 829:1,7 869:13 | 770:24 771:8,10 |
| 944:12 | 907:1 938:2 | 927:24 930:5 | 771:12,23,25 |
| laufenberg 727:7 | levels 814:16 | 934:14 947:8 | 772:1,4,9 773:17 |
| launch 850:23 | 815:18 | 958:3,21 974:18 | 773:19,21,23,25 |
| 961:12,13,15,19 | light 882:24 | listed 804:24 | 786:25 838:2 |
| 961:19,24 962:2,5 | liked 894:11 897:7 | 830:20 | 839:7 856:19,23 |
| 962:25 963:3,5,12 | limit 749:10,16 | lists 745:8 781:5 | 858:8,14 859:16 |
| launched 792:5,7 | 812:21,25 813:6 | litigation 725:6 | 860:3 862:14 |
| 851:11 | limited 744:19,22 | 726:6 733:10 | 863:5 864:1,9,14 |
| law 727:10 728:8 | 800:21 801:1 | 982:3 985:1 | 865:3 887:9,11,20 |
| 729:7,15 730:7,15 | 811:3 819:24 | little 744:17 | 887:22,25 888:4,5 |
| 733:17 735:9 | 828:14 829:5 | 779:23 847:13 | 892:10,11,17 |
| lawful 942:5 | 830:6 831:23,24 | 850:7,8 889:4 | 893:3,4,10,19,22 |
| learn 810:19 | 836:21 840:17 | 921:18 965:6 | 893:23 894:14,19 |
| learned 820:2 | 844:20 845:9 | llp 728:5 729:5 | 894:22 895:2,4,5 |
| learning 820:16 | 846:8 847:8 848:1 | 730:5 | 895:18,20,21 |
| 825:16 827:22 | 848:18 874:24 | locally 869:2 | 896:3 897:6,16 |
| led 827:8 834:4 | 881:18,23 883:2 | located 726:16 | 898:9,12,16,17 |
| left 776:17 823:13 | 908:6 | location 725:15 | 899:3,4 900:1,9,11 |
| legacy 773:12 | limiting 813:23 | locked 982:12 | 900:18 901:9,15 |
| 854:14 | 814:3 | 983:1 | 901:18 902:8,24 |
| legal 982:7 | limits 812:1,7,18 | loeser 727:6 | 903:2,3 911:15 |
| legibility 965:5 | 812:23 813:8,11 | 735:13 | 929:19 949:21 |
| lengthy 867:15 | 813:14 966:19 | log 768:21 770:2 | 950:22 951:17 |
| lesley 728:7 | line 847:4 868:13 | 806:16 856:14,14 | 958:6 |
| 883:19,21,21,21 | 982:15 983:4 | 857:22 858:1,2,4 | logging 757:16,18 |
| 884:7 | 985:4,7,10,13,16 | 859:8,12,22 | 757:19,22,22,25 |
| letter 810:16 | 985:19 | 860:23 861:16,25 | 758:3,5 759:2 |
| 848:13 | lineage 774:9 | 895:15 896:2,11 | 760:8 765:7,8 |
| level 741:14 | 822:10 939:9 | 946:25 947:1,4,6,7 | 767:22 768:2,25 |
| 742:12,14 743:5 | lines 868:10 | 948:9,10,16,16,18 | 769:2,19 770:13 |
| 756:8 761:24 | lingo 934:2 | 948:19 949:1,3,9 | 770:14 772:17 |
| 763:5 774:24,25 | | 949:11 951:4,6 | 773:12 817:7 |

HIGHLY CONFIDENTIAL

[logging - matt]

| | | | |
|---------------------------|--------------------------|-------------------------|-------------------------|
| 818:1 859:2 | 824:19,20 829:22 | 827:22 981:10 | manufacturer |
| 861:15,18,21 | 832:12 838:11 | main 830:8 | 880:11 |
| 863:25 866:21 | 842:24 843:21 | maintain 780:17 | map 919:19,24 |
| 871:22 881:8 | 867:16 870:15 | 781:3,11 866:13 | 920:6 935:22 |
| 888:3 896:7 | 881:8 910:19,19 | 919:10 924:19 | 952:25 |
| 899:13 967:17 | 915:7 921:25 | 956:10 | mapped 918:10 |
| 972:9,17 | 938:8 948:3 | maintained 781:5 | 955:3,4 |
| login 755:1 873:15 | 949:16 957:6,12 | maintains 781:14 | mapping 918:11 |
| 873:17,25 874:3,7 | 959:5,25 960:2 | 920:2,4 934:13 | 918:18,19,21 |
| 874:9,12,17,18,20 | 968:8 | major 743:15,19 | 934:1 953:12,17 |
| 874:24,24 875:4,7 | looked 809:7,17 | 822:16 | 953:25 955:12,12 |
| 875:11,13,17,20 | 811:7 812:16 | making 738:24 | mappings 920:8 |
| 875:23 876:9,12 | 825:8 832:14 | 777:15 812:2,19 | maps 917:10 |
| 877:18,21,22 | 842:24 914:14 | 816:3,11,21 817:2 | 919:10,12 |
| 879:12,13 880:14 | 923:25 | 817:9 818:10 | march 822:19 |
| 899:11 901:13 | looking 789:20 | 835:21 837:18 | mark 754:20 |
| 968:4,7,8 | 811:25 812:17 | 862:7 864:2,4 | 757:3 763:16 |
| logs 767:22 806:1 | 824:15 825:16,23 | 865:14 866:22 | 771:20 932:14 |
| 806:6,10,11 | 826:5 827:11 | 871:1 885:24 | marked 749:24 |
| 807:10 858:18,23 | 828:17 836:22 | 890:6 905:21,23 | 750:13 753:2 |
| 859:18 864:10 | 877:6 945:18,25 | manage 943:7 | 867:1,5,22 920:10 |
| 866:3,13 888:9,14 | 957:14 | 960:18 961:2 | 920:14 945:8,11 |
| 888:17 898:23,24 | looks 820:4 823:7 | 962:6,8 978:4 | 945:12 964:15,19 |
| 954:18 | 946:21 956:2 | managed 804:7 | master 731:6 |
| london 725:15 | 967:21 | 944:18 | 734:2,3,7 849:24 |
| 726:17 733:1 | lorem 809:12,15 | management | 849:25 850:2 |
| long 751:16,19 | 809:21 | 745:7 959:4 | 868:23 869:5,10 |
| 754:3 756:23 | los 731:9 | manager 755:9 | 883:25 884:4 |
| 772:15 821:20 | lost 965:20 966:4 | 827:24 961:12,13 | 901:2,7 |
| 822:14 861:12 | 966:11 | 961:15,19,24 | matched 780:15 |
| 868:9 953:15,18 | lot 737:23 749:13 | 962:2,5,25 963:1,3 | matches 808:8 |
| 963:3 967:14 | 812:19 828:9 | 963:5,12 | 921:23 |
| longer 771:5 783:7 | 830:1 | managing 748:15 | material 737:23 |
| 785:8 805:7 | lots 778:4 | manner 742:7 | materials 874:12 |
| 838:15,18 852:20 | love 738:23 | 873:6 | matt 729:14 |
| 853:19,23 929:11 | lweaver 728:14 | manual 820:12 | 733:17,25 735:9 |
| 952:20 970:7 | m | 826:13 834:15,17 | 735:23 738:9 |
| look 748:11,11 | macdonell 731:18 | 837:2 | 745:17 783:6 |
| 762:22 785:1,11 | 733:11 | manually 826:7 | 785:3 810:12 |
| 785:16 814:15 | machine 815:2 | 920:9 | 839:10 844:24 |
| 816:2 823:16,18 | 820:16 825:16 | | 849:9 861:5 |

HIGHLY CONFIDENTIAL

[matt - mentioned]

| | | | |
|------------------------|------------------------|-------------------|------------------------|
| 868:16 870:13 | meaning 739:23 | 750:18 759:25 | 890:5,13 891:3,19 |
| 877:7 946:5 | 753:15 819:5 | 760:11,23 761:11 | 894:12 896:23 |
| matter 733:8 | 863:17 896:24 | 762:1 765:19 | 897:20 898:7 |
| 769:6,10 850:12 | means 740:25 | 766:4,6,16 767:12 | 899:15 901:8 |
| 914:21 951:18 | 741:17 796:6 | 767:17 768:4 | 902:15 903:5,17 |
| matters 762:6 | 829:14 838:14 | 769:24 775:2 | 904:2,5,16 905:1 |
| 962:18 | 871:18,21,25 | 780:2,17 783:9,13 | 905:10,17 906:1,8 |
| matthew 728:6 | 872:20 904:3 | 784:15 785:5,18 | 907:5 909:5,13 |
| mbuongiorno | 932:19 936:14 | 785:25 787:20 | 910:1 911:11 |
| 729:20 | 937:21 938:7 | 788:5 789:2 | 912:23 913:9,15 |
| md 725:6 726:6 | 940:3,16 943:11 | 790:24 795:12,14 | 914:4,16 915:7 |
| mdl 725:4 726:4 | 949:18,20 952:12 | 798:18 799:14 | 916:5,21 920:13 |
| 732:19,22 920:16 | 964:13 968:1 | 800:13 802:17 | 921:1,14,15,20 |
| 945:17 964:24 | 972:22 975:17 | 803:7 806:23 | 927:19 931:9,20 |
| mean 752:19 | 976:2,17 979:22 | 807:8 808:10 | 933:7 934:11,22 |
| 754:8 759:15,23 | 979:23 | 810:23 817:23 | 935:7,25 939:13 |
| 789:16,16 792:18 | meant 793:14 | 819:12 821:19 | 940:14,18,21 |
| 793:13 796:19,21 | 906:18 913:25 | 836:5 839:19 | 941:9 942:10,19 |
| 812:9,23 813:5 | 964:10 | 840:3,6,13 841:15 | 943:1 945:11,16 |
| 826:16 834:6,7 | measures 978:10 | 843:6 844:1,13 | 946:15,18 948:20 |
| 836:2 840:24 | 978:13 | 845:4 846:3,25 | 948:24 954:6,13 |
| 844:3 851:1 852:3 | mechanism | 848:7,10 849:20 | 955:13 958:20,24 |
| 852:4 861:7,7,8 | 780:20 801:8 | 850:4,5 853:22 | 960:13 964:18,25 |
| 863:12 865:22 | 803:13 813:23 | 855:24 856:12,24 | 965:25 973:22 |
| 867:16 872:6,11 | 816:20 829:9,11 | 858:4,22 859:11 | 974:10 980:21 |
| 885:13 886:10 | 830:15 851:5 | 859:21 861:1,8,24 | members 834:12 |
| 889:17 890:10 | 853:23 856:10 | 862:9 863:7 | memory 782:3,22 |
| 892:23 893:18 | 875:4,21 | 864:14 865:17,22 | 782:24 783:23 |
| 896:20,22,24 | mechanisms | 866:11 867:4,7,21 | 917:2 929:8 |
| 899:24 911:16 | 788:24 792:9 | 868:8,19 869:1,8 | mentioned 735:8 |
| 913:14 915:1 | 801:13,25 829:22 | 869:17,25 870:2 | 735:12 742:1,5 |
| 919:1 922:25 | 830:21 853:19 | 870:16 871:2,14 | 744:11 751:22 |
| 925:2,24 926:6 | 854:15 959:21 | 872:8,13,22 873:2 | 762:8 768:6 |
| 927:3,5 929:7 | meeting 827:25 | 873:4,24 878:23 | 777:25 780:25 |
| 932:17 934:3 | melamed 728:6 | 879:16 880:2,20 | 788:5 807:22 |
| 936:12 939:18 | 732:5 733:16,17 | 881:14 882:3 | 814:18 817:23 |
| 940:1,19 941:4 | 734:14 735:5,9 | 883:4,19,21 884:1 | 823:1 825:6,14 |
| 943:9 947:13 | 736:2,7,8 737:9,21 | 884:6,10,19 | 829:6 830:24 |
| 949:15,24 966:24 | 737:22 738:12,14 | 885:25 886:11 | 832:9 836:22 |
| 972:4 973:20 | 738:17,19 741:21 | 887:8,16 888:16 | 839:21 848:24 |
| 980:2,6,8,10,11,15 | 742:18 745:18 | 888:25 889:6,18 | 853:2 868:8 |

HIGHLY CONFIDENTIAL

[merge - necessarily]

| | | | |
|------------------------------|----------------------------------|---------------------------------|---------------------------|
| merge 797:21 798:9 | 855:15,19 878:9 918:24 919:11 | modified 764:2 943:14 | n |
| messaging 795:7,7 | 921:9 934:24 | molaro 754:20,21 | n 732:1 758:8,9 |
| messed 779:5 | 936:3,4 978:11,14 | 754:23,24 755:3,4 | 869:7 974:21,22 |
| messenger 794:16 | migration 953:6 | 756:6,23,25,25 | name 733:16 |
| 794:17 795:8 | 953:10 | 757:5,8 758:4,5 | 735:8 751:23 |
| 936:23 | milestones 822:17 | 759:11 762:5 | 752:2 776:5,7 |
| meta 731:17 | mill 730:16 | 763:10,11,19,21 | 782:1,2,6,8,12,17 |
| 733:23 | millions 936:2 | 764:14 765:22 | 806:13,14 807:9 |
| metadata 925:13 | mind 745:3 763:18 | 767:16 768:18 | 807:19 814:8 |
| 925:16 947:25 | minority 855:3 | 771:21 775:9 | 818:4,5,14 826:22 |
| 950:3,4 | minute 873:5 | 787:5 932:14 | 826:23 827:13,23 |
| method 762:23 | minutes 751:18,21 | molaro's 755:6,23 | 828:2,3,6 869:11 |
| 767:18,24 768:5 | 754:5 757:3 | moment 755:14 | 869:11 870:5 |
| 778:9,10 779:17 | misbehaved 826:6 | monday 725:16 | 873:18 874:18 |
| 812:20 818:8,9,9 | missing 958:17,17 | 726:18 733:1 | 898:25 903:6 |
| 818:13,16,18,21 | mission 729:8 | monthly 915:18 | 924:23 928:19 |
| 851:8,12 856:2 | misspoke 738:10 | months 796:4 | 929:11,13,16 |
| 862:9,11,13 | misstates 741:13 | 967:1 | 930:19 931:12 |
| 888:22 916:22,24 | 742:9 906:22 | moratorium 804:8 | 944:21 952:7,9,9 |
| 917:1,9,11,17,25 | mistake 867:6 | 804:9 805:9 | 952:11,12 956:12 |
| 918:3,4,10,12 | mistaken 870:19 | moratoriums | 979:5 981:21 |
| 919:5,13,20,22,23 | misuse 846:15,18 | 804:15,19 805:2,4 | named 782:15 |
| 919:24 920:5,6,6 | 849:15 | 805:12,18 | names 732:13 |
| 920:21 921:21,24 | mmelamed 728:13 | morning 733:16 | 748:2,4,7,9 776:9 |
| 929:10 933:8,9,10 | mobile 862:19 | 734:4 | 776:11,14,16 |
| 933:14,15,22 | 875:3 882:21 | move 795:4 833:2 | 827:15 862:16,17 |
| 934:1,8,20 935:6 | 887:13 898:9,13 | 850:1 | 869:13 874:16 |
| 935:11,12,23 | 898:18 899:1,8,9 | moved 788:22 | 875:15 916:9 |
| 936:16,22 938:3 | 899:20,22 900:2 | 952:25 | 924:20 930:16 |
| 938:13 941:14 | 900:11,19 901:10 | moving 889:7 | 931:24 932:3 |
| 942:13,16 945:25 | 902:19,24,25 | mthd 732:16 | narrow 879:22 |
| 946:4 | 911:21 | 920:16 | narrower 843:7 |
| methodologies | mode 804:22,23 | multiple 757:19 | native 732:11,15 |
| 853:14 | 926:11,11,12,12 | 757:23,24 797:20 | 732:18,21 |
| methodology | 926:14,14,20 | 798:8,14 823:1 | nature 772:8 |
| 854:17 | 927:10 | 851:16,21,23,25 | 809:22 811:19 |
| methods 745:6 | models 815:2 | 852:7 857:3,10 | 819:8 839:2 |
| 762:18,20 768:6 | modern 757:16,18 | 960:9 | 902:12 905:22 |
| 812:3 814:12 | 757:19 | mute 884:5,7,7 | 922:22 |
| 817:9 818:2 | | | necessarily 777:16 |
| | | | 832:1 855:10 |

HIGHLY CONFIDENTIAL

[necessarily - objections]

| | | | |
|--|--|--|---|
| 861:16 864:5,12 865:15 880:13 905:25 909:24 918:17,19,21 950:24 977:10 necessary 894:21 982:14 983:3 need 737:19 810:19 824:7 839:24 872:20 894:12 921:13 939:9 958:23 966:1 needed 748:8 838:15,18 854:3 937:6,7 needs 839:14 894:17 neither 883:25 981:17 nevada 725:21 new 760:2,9 793:1 833:19 924:17 948:16,17,18,25 949:3 newsfeeds 905:9 908:4 night 868:21 870:13,18 nine 784:1 933:13 936:1,5 946:3,16 946:16 967:23 980:18 nodes 758:23 762:18 786:8 787:25 788:2,2 nomenclature 928:15 northern 725:2 726:2 | notating 982:15 983:4 note 749:12 785:5 849:21 945:18 951:25 noted 814:10 892:12 980:24 notes 747:8,11,17 747:20,21,22 753:19,21 754:6 754:11,13,14,16 757:4,6,9,11,14,15 784:17 785:1,16 852:25 854:10 951:9,12,13,15,20 951:21 952:4 984:4 notice 735:11 noticing 733:15 734:12 notifications 815:17 null 979:23 980:9 980:10,15,19 nullable 979:19,21 979:22 number 732:9 747:25 750:1 752:13 767:21 780:10 797:17 801:2 804:11,17 808:13 809:1,7 812:2 813:1 814:16 815:19 816:3,4,11,21,22 817:2,3,15 822:3 826:4 828:10 835:6 836:3,6 847:14 854:18 877:24 878:13,16 881:22 886:15 | 890:1 898:12,19 898:23,25 899:1,2 899:3 904:11 917:14,16 920:15 924:5,8,17,22 925:16,17 929:18 931:23 932:18,21 936:14,21 937:23 939:12 945:17 948:6 950:20 958:5,12 959:3,6 960:10 971:18,21 972:7 973:2 982:15 983:4 numbering 958:14 numbers 949:12 956:6 numerals 924:5 numeric 922:20 922:22 924:3 956:3 969:3,4,6 970:7 971:12 974:23,24 numerous 766:15 775:17 o o0o 733:3 980:25 oakland 728:11 oath 734:11 735:2 981:9 object 759:19 760:6,15 761:1,15 765:11 766:10 767:7,20 769:16 774:16 778:17 779:10 780:5,6 787:23 788:15 790:6 795:11 798:12 799:1,22 802:10,22 806:22 808:7 817:5 819:7 | 821:12 836:1 841:8 842:16 843:17 844:5 845:11 846:20 848:3 853:15 855:8 856:8 857:6 857:24 858:16 863:23 865:11,21 865:25 871:9 873:16 879:20 880:7,23 881:25 882:11 883:14 885:22 886:8 887:3,15 888:20 890:8,23 894:5 896:18 898:3 899:5 904:20 905:4,13,20 906:23 908:25 909:10 911:7 912:19 913:2,12 913:20 914:24 915:12 922:25 924:2 927:12 931:2,15 933:1 934:4,16 935:2,17 939:1 954:7 955:7 960:6 965:24 973:19 974:5 objection 734:10 734:14,15 787:9 807:3 858:25 862:3 863:1 872:16 879:7 889:2,15,23 903:23 904:4,6 906:5 941:3 objections 871:19 872:2,9,15 903:9 909:19 |
|--|--|--|---|

HIGHLY CONFIDENTIAL

[objects - particular]

| | | | |
|--|--------------------------|--------------------------|---------------------------|
| objects 780:25 781:4,12,14,17 793:2 | onset 966:5 | 893:19 894:23 | 772:23,25 773:3,7 |
| obligations 763:25 | onwards 817:8 | 896:11 931:7 | 773:10 788:23 |
| obviously 848:11 | open 869:2 873:3 | 935:5 954:18 | 794:1,13,15,23,25 |
| 857:12 | 873:9,11 874:14 | ordering 946:9,12 | 795:5 830:11 |
| occur 907:6 | 895:9,24 897:3 | oregon 725:22 | 868:2 869:6 892:4 |
| occurred 791:22 | 908:11,13,14,22 | organized 787:25 | 892:9,12 893:2 |
| 791:23 797:7 | 964:20 967:5 | 788:1 | 894:8,13 936:23 |
| 896:5 | opened 894:13 | original 791:15 | 982:15 983:4 |
| offer 907:3 936:1 | operated 822:2 | 792:6 966:17 | 985:4,7,10,13,16 |
| office 982:11 | 836:16 839:3 | 981:14 982:10,21 | 985:19 |
| officer 734:10 | 845:17 | outlook 748:11 | pages 725:25 |
| okay 734:1 735:20 | operating 882:21 | outside 761:1 | 747:10 794:4,19 |
| 736:7,16,18 737:9 | 899:9 | 774:16 799:21 | 982:14,17,17 |
| 739:3 741:8 | operation 822:24 | 802:21 815:5 | 983:3,6,6 |
| 743:18 744:16 | 835:15,19 844:6 | 842:16 843:17 | pairing 976:14 |
| 747:12 749:21 | operational 759:4 | 844:4 871:8 | pairs 974:8,14,19 |
| 775:2 783:12,13 | 759:6 843:20 | 880:23 882:11 | palo 730:17 |
| 784:22 785:18,20 | 844:2,8 | 888:11 891:6 | paragraph 848:13 |
| 788:13 802:3,17 | operationalize | 902:3,20 904:6 | part 756:4 765:2 |
| 803:7 812:22 | 961:25 | 913:2 934:15 | 768:24 769:1 |
| 818:12 840:2,3,6,8 | operationalized | 935:16 963:24 | 778:17 797:10 |
| 845:4 867:21 | 803:5 | overlap 822:13 | 805:5 806:10 |
| 869:2,4 870:2 | operations 753:13 | 860:10 | 807:5 846:1 852:1 |
| 881:24 886:20 | 802:25 803:16 | overly 896:24 | 874:14 885:10,13 |
| 897:13 910:22 | 804:1,7 805:15,20 | overview 848:5 | 886:1 887:1 |
| 933:25 935:7 | 816:1 820:6,19 | 877:12 878:21 | 888:18 897:15 |
| 938:8 942:21 | 823:17 834:13 | owned 798:14 | 899:2 904:24 |
| 946:14 949:16 | 835:7 836:4,7,17 | owner 869:23 | 920:7 969:19 |
| 957:6 980:22 | 837:8 838:3 | 872:8,10 | 978:1,9,18 |
| old 924:17 | 843:25 | p | partial 958:21 |
| once 834:2 841:2 | opportunity 907:3 | p 928:23,23 | participated 834:4 |
| 853:11 860:2 | opposed 928:11 | 944:24,25 | 834:7 |
| 869:3 | ops 827:5 | p.m. 726:18 733:2 | particular 739:12 |
| ones 781:10 | option 904:23 | 733:6 785:21,24 | 739:22 749:5,6,23 |
| 805:19 814:25 | options 878:2 | 840:9,12 884:18 | 757:25 758:2 |
| 830:8,19 | order 778:8 | 942:22,25 957:19 | 762:22,23 767:6 |
| online 764:24 | 784:18 824:7,15 | 957:22 980:23,24 | 775:3 776:6,18 |
| 774:7 | 828:7 834:1 836:8 | pacific 956:24 | 792:25 793:22 |
| | 838:3 856:9 859:5 | 957:23 | 796:25 814:12 |
| | 873:23 876:17 | page 730:16 732:3 | 815:19 817:9 |
| | 881:16,17 892:3 | 732:9 772:13,20 | 818:1,2 825:2 |

HIGHLY CONFIDENTIAL

[particular - permission]

| | | | |
|---------------------------|---------------------------|--------------------------|---------------------------|
| 829:12 830:18 | partition 872:4 | password 896:9 | 976:15 |
| 841:10 872:25 | partitioned 922:7 | 896:10 898:25 | perform 826:10 |
| 876:5 877:24 | partitioning | pattern 811:14 | 838:4 841:14 |
| 878:9 883:11 | 872:24 | 814:11 825:9 | 897:24 |
| 886:17 892:9 | partitions 871:22 | patterns 811:7,11 | performed 791:12 |
| 913:11 916:7 | partner 804:7 | 823:19 824:8 | 802:15 831:3 |
| 917:10 922:8 | 883:13 884:20,24 | pause 737:15 | 958:6 963:24 |
| 928:17 933:20 | 885:4 888:17,19 | pauses 737:15 | 964:8,11,13 |
| 936:5 938:3,13 | partnered 880:10 | payment 912:2,7 | period 741:3 |
| 939:5 961:23 | partners 883:5 | 912:10,11,16 | 742:16 756:6 |
| particularly 750:2 | 885:10,18,19 | payments 746:16 | 766:19 769:4,5 |
| 891:18 | 886:13,14,16,22 | 746:17,18 | 770:5,17 774:21 |
| parties 727:2 | 888:10 | pdf 982:12 983:1 | 779:13 783:17 |
| 728:2 729:2 730:2 | partnerships | pearly 944:23 | 789:23 813:16,17 |
| 731:2 736:18,21 | 803:23 804:1 | 945:2 | 816:8 817:4 |
| 736:24 738:7,21 | 882:5 | penalty 734:21 | 821:10 822:14 |
| 739:6,10,14 740:6 | parts 757:11 770:4 | 982:16 983:5 | 826:14 830:22 |
| 740:13,19,24 | 823:6 885:8 | 984:2 | 847:18 853:14,20 |
| 741:4,10,16,20 | party 733:15 | people 742:22 | 854:20,23 865:19 |
| 742:2,8,13,17,23 | 750:3 777:9,10 | 744:3 747:22 | 866:2 873:14 |
| 743:2,7,14,17 | 778:8 796:20,22 | 763:11 769:21 | 874:6 884:25 |
| 744:2,7,8,13,21 | 802:24 813:2 | 771:4,6 797:3 | 905:15 910:11 |
| 745:9 746:5,13,20 | 829:21,24 831:11 | 799:9 805:19 | 913:24 923:21 |
| 787:8,12 788:7,10 | 831:13 836:23 | 807:14 808:24 | 933:8 936:20 |
| 788:14,18 789:4 | 838:1 862:2,25 | 814:21 815:8,9,15 | 938:12 944:15 |
| 790:14 800:20,24 | 874:2 875:2,24 | 815:23 818:18,21 | 953:6,18 954:14 |
| 811:2 819:23 | 876:20 879:23 | 820:25 821:17 | 976:8 980:13 |
| 828:13 829:4,20 | 880:3 889:20 | 822:4 824:4,4 | 982:18 983:7 |
| 830:5,17 836:20 | 890:11,17,22 | 826:2,9,18,21 | periodically 831:3 |
| 837:19 838:14 | 891:1 892:2 905:2 | 827:13 829:21 | 873:8 |
| 840:16 844:19 | 905:11 906:2,3 | 831:19 835:3,6,10 | periods 845:15 |
| 845:8 846:7 847:7 | 907:14 908:1,6 | 836:3,6 845:14 | 850:10 |
| 847:25 848:17 | 909:6,14 912:3 | 854:5 859:1 864:8 | perjury 734:21 |
| 849:25 850:7,13 | 916:3 924:15 | 866:8,17 876:17 | 982:17 983:6 |
| 851:16 852:7,19 | 932:25 933:4 | 881:19 893:22 | 984:2 |
| 853:13 860:13 | 939:23 974:9,15 | 918:25 925:12 | permission 777:15 |
| 873:6,15 874:1 | 981:19 | 926:15 929:5 | 833:7 841:9,23 |
| 875:2,18 889:1,11 | party's 893:9 | 951:19 979:6 | 875:5 876:24 |
| 889:14 890:15 | pass 857:3 | percent 791:24 | 877:16 878:15 |
| 910:18 | passing 791:19 | 929:24 937:5,9,12 | 879:4,18 880:5 |
| | 942:8 | 938:2 939:8 | 942:7 |

HIGHLY CONFIDENTIAL

[permissions - policy]

| | | | |
|---|---|--|---|
| permissions 789:8 790:1 793:2 830:12,13,14,15 833:9,10,14,17 834:1,10 839:20 840:18,20,21,22 840:25 841:3,4,6 841:12,15,17,18 841:22,24 842:7 842:14,19,20 843:11,14,22 845:10 846:9,11 846:17,22 873:20 877:20,23 878:2,3 878:16 909:3 942:4 | phone 896:10 898:12,19,23,24 899:1,2,3 phrase 743:19 793:15 807:22 831:14,15 885:15 947:1,4 phrased 890:1 944:7 phrasing 876:25 phuntso 730:14 733:24 piece 829:12 841:10 913:19 918:5 933:19,22 pieces 824:11 851:21,25 852:8 932:23 pipelines 941:24 pivot 930:24 pixel 891:5,11,14 891:17,20,22 place 801:25 807:5 815:13 816:20 820:14 821:10,15 821:18,20,21,23 822:19,24 824:6 829:9 842:3 843:20 844:2,8 846:14,17 847:19 848:6 881:15 882:8 938:14 953:7,19 956:25 957:4 981:6 placed 799:9 803:4 804:8,22 805:16,21 827:6 placeholder 809:12,21 places 896:11 | plaintiffs 726:16 727:4 728:4 733:18,21 738:5 750:14 752:9 849:2 867:9 935:9 973:25 974:14 planning 751:9 753:13 platform 739:11 740:16,22 741:10 742:1 743:3,12 744:14,17,24 750:3 755:1 756:10,15 757:23 758:17,20,24 762:9,13,15,18 764:19 765:8 768:25 770:6 772:5,17 782:18 787:13,14 788:20 789:8 791:3,14 792:7,11 798:4 799:3,11 800:4,19 800:23 801:3 802:19 803:10 805:8 810:8,24 811:5 812:15 813:9,13,19 814:1 814:13 819:16,22 820:5 823:4 824:23 825:25 826:1,16,19 827:12 828:12 829:2 830:4 836:19 837:15 840:15 842:23 844:10,17 845:6 845:17 846:6 847:6 848:22 849:14 855:4,7 873:20 874:10,14 | 875:8,12 879:25 880:14 904:15 905:6 906:14 907:10 916:2 925:21 926:4,7,25 927:8 932:8,11,15 932:20,22 943:19 platforms 731:17 881:20,22 882:22 play 737:4 please 733:14,15 734:13,18 737:3 748:4 751:24 752:3 769:8 814:8 828:5 845:2 856:25 877:9 967:8 plenty 773:13 plug 829:24 836:23 837:25 plus 789:23 point 760:13 761:7 762:4,23 763:20 771:20 783:19 785:6 791:19 828:4 861:24 871:1 878:3 879:16 900:19 913:18 policies 799:3,5,11 799:17,23 800:2 802:18,24 803:2,6 803:9 818:24 838:7 843:4 844:9 860:4,9 policy 800:4,4,11 801:6,8,15,19,22 802:2,5,6,9,14,15 802:25 803:13,16 803:19 804:3 805:3,13,15,21,23 |
|---|---|--|---|

HIGHLY CONFIDENTIAL

[policy - privilege]

| | | | |
|--------------------------|---------------------------|---------------------------|--------------------------|
| 806:20 807:12 | potential 752:22 | 815:16 821:16 | preventing 805:10 |
| 808:4 809:18,20 | 781:20 890:2,5 | 845:20 846:1 | prevents 804:23 |
| 817:16 820:5 | 914:7,11 | 848:15 854:6 | preview 945:14 |
| 823:17 827:5 | potentially 747:14 | 921:5,8 965:11 | previous 765:8,21 |
| 843:25 925:15 | 753:2 760:17 | prepare 735:22 | 771:13 826:23 |
| political 864:16 | 826:5 837:6 | 740:7 745:21 | 863:3 874:18 |
| 865:5 941:12 | 905:23 908:3 | 746:9,14,23 747:6 | 909:21 945:7 |
| poor 783:22 | 909:23 910:3 | 747:23 748:1,24 | previously 768:3 |
| poorly 944:7 | 969:17 | 749:6 773:14 | 820:18 871:12 |
| positive 902:17 | power 760:19,24 | 784:18 822:3 | 873:22 888:22 |
| possession 862:23 | 937:18 | 828:8 | 921:9 946:22,24 |
| possibility 742:5 | practice 780:12 | prepared 735:20 | 969:25 |
| 935:14 | 809:14 | 736:9,12 737:1 | primarily 834:16 |
| possible 738:1 | practices 741:17 | 739:4,9 740:3,14 | 843:24 |
| 740:23 741:2 | precise 767:9 | 741:11,23 742:7 | primary 741:4 |
| 760:21 761:8,12 | 770:12 772:8 | 744:19,23 745:1 | 743:1 744:12 |
| 762:21 763:2 | 782:2,12 786:24 | 745:10,11,18 | 748:18,20 850:21 |
| 766:23,25 767:11 | 807:19 809:22 | 746:8,22 747:4,10 | 874:4,7 875:20 |
| 767:13 769:17 | 819:8 820:22,23 | 747:16 774:23 | 928:16 |
| 775:10 777:17 | 822:5,12,12 832:5 | 803:11 804:12 | prior 761:13 |
| 781:8 785:13 | 835:6 839:2 | 808:19 810:7,10 | 767:17 769:25 |
| 798:15,19,22 | 852:22 854:1 | 810:25 819:25 | 790:15 795:16 |
| 799:2 816:15 | 880:25 902:12 | 822:8 830:10 | 833:21 842:7,12 |
| 817:13,19,22 | 923:15 932:21 | 848:20,22 849:12 | 844:3 846:9,18 |
| 831:9 838:8 | 960:10 | 914:19 | 866:11 944:15 |
| 839:18 845:18,22 | precisely 770:20 | preparing 747:19 | 981:8 |
| 849:1 858:11 | 776:23 824:9 | 768:15 820:3 | privacy 733:9 |
| 861:18 866:18 | 903:10 930:12,20 | prerequisite 893:8 | 801:8,15,19,22 |
| 867:11 881:6 | precision 822:7 | present 731:15 | 802:2,5,6,7,8,13 |
| 899:8 900:14 | predefined 781:10 | 769:11 850:16 | 802:15,18,24 |
| 913:23 929:5 | 855:14 | 875:8 900:21 | 803:5,9,13,19 |
| 940:7 941:5 | predicate 889:11 | presently 733:19 | 804:3 805:3,13,23 |
| 953:11 954:14,19 | 961:17 | 755:7,12 781:11 | 806:20 807:12 |
| 954:22 960:9 | preferences | 826:1 | 808:4 809:18,20 |
| 962:24 976:17 | 864:16 865:5 | presto 937:2,16 | 818:24 878:18 |
| possibly 816:15 | 941:12 | pretty 824:3 837:1 | 925:15 942:4 |
| 826:8 | premise 857:2 | 837:1 | 959:10 962:1,7 |
| post 890:11 | prep 828:9 | prevent 800:5,8 | 969:13 |
| 907:18 936:23 | preparation | 846:15,18 | privilege 750:9 |
| posts 908:10 | 754:18 763:4 | prevented 760:12 | 785:9 |
| | 807:13 808:25 | 798:25 799:3 | |

HIGHLY CONFIDENTIAL

[privileged - querying]

| | | | |
|---|--|---|--|
| privileged 785:3,7 probably 754:21 757:2 776:8 785:4 788:11 803:4 867:13 problem 745:5 procedure 982:19 982:20 proceeded 885:7 proceedings 981:5 981:8,9,15 process 808:21 820:12,20 821:9 821:11 827:10 832:3 833:3,6,18 834:5,14,15,17 837:3,5,9,10,24 842:4 856:9 877:2 885:11,13,20 886:2,4 907:5 914:5 960:17,24 961:3,4,11,20 962:1,7,8 965:1 977:18,22,25 978:2 979:4 processed 934:18 processes 761:21 821:2 843:20 844:2,8 899:11 978:16 979:7 processing 761:6 954:11 produce 784:18 869:14 931:6 produced 756:3 920:15 934:12 935:15,19 966:19 966:21,22,25 967:11 973:4 974:13 | produces 937:17 product 824:12 874:13 875:11,24 875:24 891:12,20 891:23 908:14 910:7,14 963:1 production 754:25 973:10 professional 726:21 981:2 profile 725:5 726:5 733:9 751:15 787:18 789:11 897:16,18 907:20 936:23 982:3 985:1 program 835:16 874:21 881:19,21 881:24 882:1,4,7 882:10 883:3,6,16 883:17 885:1,6,7 885:10 programmatic 920:6 project 745:7 885:1 promised 746:17 propagated 916:15 properties 926:10 928:10 property 872:11 872:19 proportion 917:21 proposing 869:14 protect 896:11 provide 749:15 759:2 763:8 804:4 835:24 836:6 868:11 876:17 901:16,24 902:16 | 906:3,12,15,20 907:6,8 908:12 940:8 942:6 provided 743:14 746:12,18 747:2 762:20 778:6,7,21 801:10,12,16 802:5 803:19 806:20 807:12 808:3 809:6,18 810:6 812:15 817:25 837:24 855:15 857:23 860:13 867:8 868:21 870:13 883:9,13 902:9,25 905:11 906:2,11 916:8 935:10 941:15 950:7 963:22 964:23 965:4 969:18 982:19 983:8 provider 778:21 778:25 provides 919:23 926:21 providing 742:8 844:11 857:17 873:25 883:2 proxy 872:14 pst 956:24 public 853:18 926:12 934:22 publicly 919:15,18 publish 805:11 842:21 published 842:25 852:23 publishing 842:19 pulled 975:23 | pulling 964:22 purpose 746:4,11 802:4 881:21 889:9 891:24 894:6 purposes 739:3 891:21 910:10 938:10 973:10 pursued 885:18 pushing 848:24 849:4 put 741:7 855:18 873:2 941:10 putting 816:6 pwangdra 730:19 |
| q | | | |
| qualified 808:11 891:18 qualifiers 749:14 749:15 qualitative 803:8 queried 766:14,24 767:3 850:22,22 855:25 931:10 queries 851:3,16 851:17 855:13 857:23 858:3,19 858:20,24 859:12 859:16 860:20 861:3 931:5 query 766:12,17 774:5 791:17,21 850:20 851:6,6,12 851:14 852:1 854:24 855:12,16 856:10,11 858:6,8 859:4,6,8 916:19 937:16 941:18 960:4 973:4,8 querying 766:13 767:14 856:3 | | | |

HIGHLY CONFIDENTIAL

[question - records]

| | | | |
|---|--|---|--|
| question 737:6,10 737:16 740:3 743:20 759:10 761:4,17,20 762:2 763:6,9 764:7 765:17,20 766:5 771:16,17 773:15 775:13,24 779:5 784:12 787:4 795:17 802:4 810:2 819:17 828:23 834:8 839:20 840:5 843:7,8 845:3 846:4 854:5,22 857:20 860:4,25 861:23 868:24 877:4,8,9 885:15 889:3,5,12,25 890:6 892:16 893:13 898:15 906:7 912:22 913:6,8,22 914:3,9 915:1,2 916:11 923:16,23 925:22 926:5 929:8 932:18 935:8 938:20 940:11,13 940:22 944:7 947:16 950:18 961:18 967:10 973:23 | 793:9 797:25 814:6 819:3 827:4 827:7 835:12 839:22 844:8 849:8 860:10,17 867:12 920:23 quick 830:14 quickly 745:15 775:24 785:12 948:23 quit 895:6 quite 820:10 880:9 928:6 quoting 849:13 | reading 738:15 745:3 801:8 982:23 983:9 ready 835:1 real 775:22 830:14 really 868:9,9 911:17 948:23 realm 935:14 reap 979:9,10,25 reason 794:25 937:12 953:21 964:1,5 985:6,9,12 985:15,18,21 reasonable 847:22 reasons 797:17 rebecca 725:20 726:20 818:10 869:25 981:1,24 recall 748:22 749:10,17,19,25 750:1 752:11 772:6,7,11,13,22 774:5 776:15,24 781:19 782:2,4 783:19 791:15,18 791:22 792:1 797:2,6,11 819:1,2 822:6 827:25 862:19 884:25 886:16 917:3 929:21 930:11,16 930:19,21 931:24 932:3 receive 777:12,14 835:1,1 870:11 889:1,13,18 891:4 892:1 912:2 received 746:4,19 747:2 870:18,18 889:10 890:14 907:14 910:22 | 911:5 912:7,10,11 912:16 934:18 receiving 906:10 915:8 recess 785:22 840:10 884:16 942:23 reciprocity 903:18 903:22 906:17,25 recognize 779:22 recollection 752:21 773:19,22 776:20 779:18 782:7 783:16,18 reconstruct 817:14 955:19 record 733:5 734:9 735:12,24 743:8 745:17 752:3 784:16,24 785:11,19,21,24 810:15,21 840:7,9 840:12 848:8 849:3 855:25 856:12 865:14 867:8 868:15 869:3,10,23 870:11,17 877:10 883:18,20,22 884:1,4,12,15,18 920:17 923:7 942:19,22,25 945:20,24 948:23 958:20 965:23 980:21,23 981:9 981:12 recorded 774:11 865:19 866:16,22 964:4 records 805:22 807:10 817:1 |
| | r | | |
| | r 752:5 818:8,9 944:24,25 985:3,3 r&s 983:1,9 raise 734:18 raised 978:17 raising 849:17 random 965:2 range 742:21 793:4 823:23 825:17 914:12 947:20 rate 812:1,7,17,21 812:23,25 813:5,7 813:11,14,23 814:2 raw 957:12 reach 804:2 813:25 824:21 825:3 reaches 960:22 reaching 814:4 read 745:25 747:23 848:7 935:3 984:2 readable 951:16 952:1 | | |
| questioning 739:3 784:21 810:13 questions 735:11 735:13,17 736:3 736:10,12 737:6 739:4 740:4 741:7 741:18 747:15 749:13 765:23 769:7,10 783:10 | | | |

HIGHLY CONFIDENTIAL

[records - rendered]

| | | | |
|--|---|--|--|
| 837:22 862:23 864:18 865:1,7 925:9 926:3 945:2 945:6 recreate 817:19 redesigned 978:6 redesigning 978:2 redirect 791:17 redirecting 879:13 refer 798:5,7 852:4 874:20 886:19 904:22 922:7 928:14,16 929:12 939:4,14 943:20 956:7 969:9 972:10 reference 736:16 777:7,8 783:2 815:10 849:23 972:13,17 referenced 935:10 970:10 973:1,8 982:6 references 960:16 referencing 757:20 782:9 802:8 914:17 978:21,24 referred 818:12 818:15,18,21 821:8 888:22 929:6 934:6 956:14 referrers 829:23 referring 764:5 774:4 788:12 793:16 846:24 853:4 900:3,4,4 909:20 918:25 919:3,4 928:20 929:15 948:19 | refers 812:25 836:23 837:25 871:23 873:18 874:21 908:14 917:5,9 918:4 919:16 925:6 930:10 933:22 937:22 939:17,20 948:9 949:9 952:9 956:23 957:22 958:5 959:3 968:3 969:6,23 970:4,16 971:14,16 972:2,7 975:2 979:12 reflect 772:21,25 869:12 870:8 922:10,13 946:13 958:2 960:23 961:5 965:14 966:3 968:6 972:21 974:3,3 reflected 772:12 773:9 917:1 921:3 937:20 942:13 945:2 946:19 947:17,20 949:22 950:15 955:6 956:21,25 957:8 959:17 960:24 962:3 963:18 973:24 976:3 reflecting 753:19 757:4 774:11 815:20 818:1 888:17 reflective 924:11 reflects 870:4 871:16 941:14 957:3 965:16,18 966:9 969:5 970:2 974:7,14,25 975:8 | 975:10,25 reframe 972:6 regan 730:6 733:24 regarding 751:12 754:6 757:15 774:15 786:18 805:22 808:19 848:14 849:6 regards 764:1 882:22 register 894:16 897:7,9 registered 726:21 894:19 981:1 regularly 768:24 770:22 771:8,10 771:12,23,25 772:1 773:17 812:1 relate 754:15 841:6 871:11 950:2 related 736:3,10 736:21 800:23 803:10 830:4 840:14 844:17 847:5 871:6 891:21 relates 725:8 726:8 832:18 848:16 903:18 relating 736:13 752:15 753:21 754:11,16,25 759:8 800:18 806:12 810:7,24 819:22 828:12 829:2 836:18 845:6 846:6 848:21 | relation 774:8 916:2 relationship 803:25 829:22 903:19 918:3 970:18 relative 814:16 816:4,22 817:15 981:18 relatively 771:17 788:3 814:23 883:2 901:22 relayed 846:1 released 982:21 relevant 782:19 865:19 900:20 religious 864:16 865:5 941:12 remain 896:3 remainder 956:17 remained 977:15 remember 786:2,3 828:4,6 840:19 884:21,22 remote 734:11 remotely 725:14 726:18 981:6 remove 976:18,21 977:16 980:4 removed 853:17 950:9 975:4,11,21 976:9 977:3,8,11 979:14 removes 980:3,12 render 876:9,12 876:15 880:13 892:3,7,25 895:4 rendered 892:9,14 892:20 893:21 895:1 908:3 |
|--|---|--|--|

HIGHLY CONFIDENTIAL

[renders - retention]

| | | | |
|--------------------------|---------------------------|--------------------------|--------------------------|
| renders 873:19 | reps 836:9 | 866:23 876:20 | 886:18 969:19 |
| reopen 895:16 | request 768:14 | 877:19 878:9,20 | responsible |
| reopened 895:6 | 777:11,23 785:16 | 888:6,9,24 917:16 | 803:24 813:10 |
| repeat 737:5 | 790:18 791:5,18 | 918:10 919:11 | 835:4,20 837:13 |
| 738:12 739:15 | 829:15 833:7,9,14 | 934:1,23 935:10 | 837:16,21 951:20 |
| 911:16 | 833:16 841:2,22 | 935:11 936:15,22 | 951:24,24 979:7 |
| rephrase 795:12 | 841:24 842:9 | 937:25 938:1 | rest 745:12 792:4 |
| 938:20 939:25 | 851:9,19 857:6,10 | 939:11 | 792:5 850:8,19,25 |
| 947:16 952:21 | 862:7 864:2,4,13 | require 861:20 | 851:2,8 852:2,8,10 |
| replace 852:18 | 864:22,23 865:15 | 941:23 | 852:13,20,21 |
| replaced 945:5 | 865:16,24 866:14 | required 748:3,23 | 853:2,6,11,17 |
| replacement | 876:23 878:11,19 | 761:6,22 765:15 | 854:12 859:23 |
| 786:19 863:18 | 879:12,19 888:3,4 | 778:7 841:20,21 | 861:7 873:7,23 |
| 879:24 | 888:5 890:24 | 860:24 878:16 | restarted 895:22 |
| reported 725:14 | 917:15 918:7,10 | 892:15 954:11 | restate 760:1 |
| 725:19 726:18 | 919:13,14,19,25 | requirements | 766:4 773:8 |
| reporter 726:20 | 933:24 934:8,18 | 765:7 | 774:13 779:6 |
| 726:21,22 733:13 | 934:21 935:5 | requires 833:7 | 794:24 806:23 |
| 734:8,17,20 867:2 | 938:21 939:22,23 | reread 864:25 | 811:13 846:3 |
| 884:13 920:11 | 939:24 940:2,4,6,9 | resolve 920:4 | 854:22 856:24 |
| 945:9 964:16 | 941:6 942:5,8 | resources 765:15 | 862:21 864:24 |
| 981:2,3,3 | 971:11,13 974:22 | respect 809:25 | 877:4 885:16 |
| reports 815:17,20 | 975:2,13,14 | 848:15 872:16 | 898:10 911:2 |
| 916:9 962:21 | requestable | respond 779:3 | 912:23 923:24 |
| represent 733:18 | 877:23 | 848:12 918:6 | 941:2 944:8 |
| 733:21 886:20 | requested 772:24 | response 763:25 | result 778:11 |
| 920:25 | 834:10 841:12,16 | 765:6 768:13,14 | 864:22 875:24 |
| representation | 841:17,19 842:8 | 768:17 778:6,9,17 | 876:16 937:17 |
| 848:8 | 856:6,13,15 | 779:8 781:21 | 953:25 |
| representative | 857:14 858:5,14 | 791:17 798:18 | results 764:6 |
| 725:13 942:15 | 858:24 859:22 | 851:13 857:18,23 | 879:11 |
| represented | 861:3 862:1,24 | 858:3 878:20 | retained 773:6,10 |
| 870:12 921:24 | 864:20 865:8,10 | 891:1 917:12 | 773:12 774:14,19 |
| 954:18 | 880:17 888:18 | 918:1 933:24 | 781:17 806:7 |
| representing | 918:13 938:13,23 | 934:9,20 940:5,6,6 | 838:5,9 853:18 |
| 807:6 950:3 | 981:16 983:1,9,10 | 940:7,8 942:2,6,6 | 959:13,15,19 |
| represents 943:12 | requesting 834:1,2 | 942:9 978:17 | retains 888:14 |
| 949:4 951:14 | 842:14 843:22 | responses 768:19 | 945:6 |
| 955:8 956:6 970:4 | 858:12 | 768:21,23 769:14 | retention 774:22 |
| 973:5 | requests 768:17 | 769:22 781:24 | 806:5 817:16 |
| | 851:22,24 865:20 | 858:2 860:23 | 838:6 858:9 860:4 |

HIGHLY CONFIDENTIAL

[retention - schwing]

| | | | |
|--|---|---|---|
| 860:9 959:21 retrieval 928:12 return 744:5 775:24 778:2 780:14 839:24 850:5 857:14 876:25 939:14 940:5,7 941:5,7,17 942:2 982:17 983:6 returned 768:10 777:19 778:11 779:14 780:18 781:1,4,6,12,15,18 781:25 783:3 808:15 809:24 851:14 864:21 865:2 873:5 921:22 940:5 942:3 returning 778:16 780:14 returns 878:19,19 reveal 750:8 revenue 752:22 review 784:20 803:5,8 808:20 826:13 827:9,10 829:10,10 833:2,4 833:6,18,19,22,23 833:25 834:5,16 834:20,22 835:1,4 835:13 841:20,21 842:4,4 843:13 846:23 847:1,2 872:20 967:10 981:15 982:8,10 982:13 983:2 reviewable 833:8 833:10 | reviewed 751:7,14 753:16,25 868:18 868:20 870:23 871:3,4 882:16 921:5,7 946:22 965:11 reviewing 797:12 right 734:18 736:4 736:11 754:21 763:8 771:22 778:2 784:14 789:25 803:11 810:1 812:18 814:12 816:6,12 816:13 819:10 821:5 825:12,19 825:20 828:2 834:19 836:25 842:2 844:21,23 847:1,19 848:2 853:9 854:10 857:4 860:13 863:16 870:16 873:24 875:9 879:6 880:9 898:2 900:17 928:15 933:21 953:14 962:4 road 730:16 rohrback 727:5 733:20 role 751:2,3,5,8,12 753:10 755:6,11 755:14,16 756:12 756:19 836:11 925:12 926:16 romano 725:20 726:20 981:1,24 room 883:24 884:3,9 | ross 729:16 rough 838:21 854:18 roughly 835:10 838:20 routinely 769:23 769:25 770:11,24 row 888:6 936:8 936:18 938:1,8,11 938:12 939:14 949:13 950:3 951:14 957:7 968:6,9 971:22,22 975:14 976:12 rows 868:18,20 870:3 871:5 920:20 933:13,13 934:24 936:1,3,5 938:9 946:2,8,17 949:12 965:2 967:24 980:18 rpr 725:20 981:24 rule 845:21 ruled 806:1 rules 814:24 827:19,20 878:18 959:11 969:13 983:8 run 931:5 934:8 runs 762:17 801:18 934:19 s s 732:8 928:23 944:25 985:3 sample 869:15 921:7 san 729:10 sandbox 804:22 926:12,20 927:10 satisfies 878:20 | saying 796:10 821:6 856:20 868:17 943:25 963:22 966:24 says 945:19 949:17 951:9 952:7 964:7 scale 790:4 scenarios 879:22 schedule 982:10 scheme 795:3,15 923:11,14 schemes 970:15 schwing 729:6 733:22,22 734:15 735:23 736:5,6 737:9,18 738:9,18 741:13 742:9 745:14 750:7 759:19 760:6,15 761:1,15 765:11 766:10 767:7,20 769:16 774:16 779:10 780:5 783:6,12 784:16 784:22,25 785:15 787:9,23 788:15 790:6 795:11 798:12 799:1,21 802:10,21 806:22 807:3 808:7 810:12 817:5 819:7 821:12 836:1 839:10 841:8 842:16 843:17 844:4,24 845:11 846:20 848:3 849:9 850:2 853:15 855:8 856:8,16 857:24 858:16,25 859:14 |
|--|---|---|---|

HIGHLY CONFIDENTIAL

[schwing - shared]

| | | | |
|----------------------------|-------------------------|---------------------------|---------------------------|
| 860:21 861:4,9 | 802:21 837:18 | see 765:22 767:16 | september 772:18 |
| 862:3 863:1,23 | 842:17 843:17 | 771:15,21 775:3 | sequential 958:15 |
| 865:11,21,25 | 844:4 871:8 | 783:5 787:5 790:7 | series 737:6 847:9 |
| 868:1,4,16 870:10 | 880:24 882:11 | 807:24 813:20 | 928:11 960:3 |
| 871:1,8,19,24 | 888:11 891:6 | 814:5 816:2,21 | serve 919:14 |
| 872:2,9,15 873:16 | 902:4,20 904:7 | 819:16 823:21 | server 777:17 |
| 877:7 879:7,20 | 913:3 934:15 | 867:25 868:4 | 808:16 |
| 880:7,23 881:25 | 935:16 | 869:17,22 870:1,6 | servers 892:6,25 |
| 882:11 883:14,23 | scoped 788:23,23 | 870:7 893:16,19 | service 801:9 |
| 884:2,8 885:22 | 793:20,21 794:1,2 | 901:2 909:4 | 925:15 |
| 886:8 887:3,15 | 794:9,11,14,15,23 | 910:20 921:10,18 | session 894:22 |
| 888:11,20 889:2 | 794:25 795:1,5,9 | 922:2,17 933:16 | 895:2,8,18,23 |
| 889:15,23 890:8 | 795:18 796:1,3,24 | 933:17 938:16,17 | 896:4,13,13 897:4 |
| 890:23 891:6 | 797:5,8,15,18,23 | 945:13,22 948:3 | 939:5 |
| 894:5 896:18 | 798:1,3,10 828:18 | 951:10,11 955:2 | sessions 757:1 |
| 897:13 898:3 | 830:11,11,25 | 955:24 956:15,16 | 895:12,13 896:6 |
| 899:5 902:3,20 | 831:7 832:1,9,19 | 956:18,20 957:1 | set 757:25 758:2 |
| 903:9,23 904:4,6 | screen 867:14,20 | 957:13,25 959:9 | 780:21 811:6,22 |
| 904:20 905:4,13 | 867:22 869:18 | 960:4 963:14,16 | 812:3 813:12,15 |
| 905:20 906:5,22 | 875:14 921:10 | 966:21 968:12,20 | 827:4 841:10 |
| 908:25 909:10,19 | 945:15,19 964:21 | 970:16 | 860:5 876:15 |
| 911:7 912:19 | 965:7 | seeing 772:7 | 894:9 897:8 918:5 |
| 913:2,12,20 914:9 | script 762:17 | 966:16 968:18,18 | 930:11,12 952:16 |
| 914:24 915:12 | scroll 868:13 | seek 849:6 | 952:17,17 977:20 |
| 916:11 927:12 | 956:16 957:2 | seen 797:18 | 978:4,9 981:6 |
| 931:2,15 933:1 | scuba 774:6,7 | 867:10 882:25 | sets 813:7 814:12 |
| 934:4,15 935:2,16 | 775:16,22 | 903:25 914:10 | setting 813:10 |
| 939:1 940:13,15 | search 782:16 | 946:19 | 979:12 |
| 941:2,20 942:17 | 830:25 869:14 | select 893:25 | settings 895:14 |
| 946:5,14 954:7 | 938:14 959:23 | 896:20 | 896:1 942:4 |
| 955:7 960:6 | 960:9,11 | selected 896:14,16 | share 787:8 799:4 |
| 965:24 973:19 | searching 832:9 | 936:2 | 867:14,19,21,23 |
| 974:5 | 960:8 | selection 936:4 | 904:24 905:1,7,18 |
| science 755:8 | seattle 727:13 | 965:2 | 907:4,11,16,18,25 |
| 756:15 771:15,18 | second 778:16 | sell 912:4,8 | 908:5,9,9,16 909:8 |
| scientist 756:10 | 790:9 964:21 | sense 736:24 737:2 | 910:5,8 920:19 |
| 769:18 932:7,11 | security 828:17 | 737:17 790:5 | 921:15 945:14,15 |
| 932:13 | 829:6 830:24 | 841:1 | 964:20,21 965:6 |
| scientists 931:5,10 | 832:18 833:1 | sent 743:9 858:2 | shared 738:11,20 |
| scope 761:2 | 878:6 896:12 | separate 956:10 | 739:5 740:5 |
| 774:17 799:21 | | | 743:16 744:2,7,7 |

HIGHLY CONFIDENTIAL

[shared - special]

| | | | |
|--------------------------|---------------------------|------------------------|------------------------|
| 786:15 788:6 | 823:22,23 826:6 | size 921:18 | 893:12 896:23 |
| 829:20 837:19 | 827:11 858:1 | slighter 929:11 | 897:12,12 898:10 |
| 843:2 875:6 | 901:23 904:24 | smaller 924:8 | 898:14 899:24 |
| 891:15 908:18,19 | 907:4 946:4,21 | smart 876:14 | 906:6 909:11 |
| 908:22,23 909:1,6 | 975:1 | smith 730:6,12 | 912:20,21 919:9 |
| 909:14,17,24 | similarities 824:2 | 733:24 | 933:13 936:8 |
| 910:4 915:20 | similarity 823:7 | social 829:24 | 938:25 940:11,20 |
| 916:18 | similarly 765:5 | 836:23 837:25 | 944:7 945:17 |
| shares 743:2 | 771:21,24 780:8 | 897:17 923:4 | 946:11 948:8,14 |
| 744:12 | 820:17 823:3 | sold 738:6,11 | 952:16 953:9 |
| sharing 843:4,9 | 851:10 872:18 | solemnly 734:20 | 954:6 957:21 |
| 915:16 921:11 | simon 725:13 | solutions 982:7 | 958:25 959:24 |
| short 876:2 | 726:15 732:3 | somebody 750:23 | 961:15 966:7 |
| shorter 838:7 | 733:7 735:1 | 751:22 762:21 | 968:6 970:12 |
| shorthand 726:20 | 759:20 780:7 | 767:4 800:16 | 971:1 972:6 |
| 981:2,10 | 867:23 868:2,5 | 813:19 819:15 | 973:20 975:19 |
| show 831:10 | 940:20 982:1,4 | 825:3 844:16 | sought 843:11 |
| 945:15 | 984:1,13 985:2,24 | 916:17 | source 972:13 |
| showing 879:12 | simple 814:24 | somewhat 811:16 | sourced 784:3 |
| sid 872:8,10,14 | 821:1,2,9,11 | 926:6 | sources 745:8 |
| side 917:12 918:2 | 827:19 923:23 | sophisticated | 831:24 931:18 |
| sign 982:16 983:5 | simpler 953:23 | 814:25 | space 795:6 |
| signal 778:15 | simply 848:25 | sorry 739:18 | 811:18 814:22 |
| signaled 780:1 | 912:24 | 745:14 759:17 | 924:6 |
| signaling 779:21 | single 797:21 | 764:6 765:25 | speak 748:13 |
| signature 981:23 | 798:9 851:17 | 773:7 778:22 | 749:7 750:15 |
| 982:21,23,23 | 857:3,8,11,14 | 779:2 780:5 788:9 | 751:16,19,20 |
| 983:9 | 858:6 887:21 | 788:11 792:15,17 | 752:6,24 753:5 |
| signed 793:18 | 927:20,21 930:25 | 795:12,20 796:14 | 754:3,23 763:12 |
| significant 795:4 | 938:4,5 953:12,13 | 796:16,17 797:25 | 763:14,18 782:18 |
| 795:10,15,18,21 | singular 757:18 | 800:6 816:24 | 787:5 810:17 |
| 795:22,23,25 | sir 891:9 | 833:24 834:8,18 | 813:14,19 819:15 |
| 796:6,13,18,19,21 | sit 749:19 751:14 | 842:8 850:25 | 821:8 824:22 |
| 869:15 | 756:16 768:12 | 851:15 852:4 | 835:17 849:18 |
| significantly | 776:14 786:23 | 853:5 854:21 | 882:14 891:18 |
| 770:16 771:3 | 789:21 806:9 | 855:18 861:5,9 | 904:9 932:10,13 |
| 937:18 | 825:19,20 859:19 | 862:20 864:22,25 | speaking 740:21 |
| similar 765:12,21 | 932:4 | 867:5,18 869:21 | 753:18 814:13 |
| 767:15 771:13 | site 892:19 896:17 | 871:20 875:2 | 815:5 862:10 |
| 790:4,4 794:2 | situation 780:15 | 883:17 884:12 | special 731:6 |
| 820:4,17 823:20 | 882:25 978:18 | 889:21 892:10,22 | 734:2,3,6 774:23 |

HIGHLY CONFIDENTIAL

[special - stored]

| | | | |
|----------------------------|---------------------------|---------------------------|---------------------------|
| 849:24,24 850:2 | 822:15 891:16 | standard 741:16 | stated 738:21 |
| 868:23 869:5,10 | specifies 877:20 | 741:16 768:24 | statement 800:9 |
| 883:25 884:4 | specify 851:8,12 | 778:20 779:1,4,7 | 803:14 804:3 |
| 901:2,7 | 859:5 | 780:21 838:6 | 808:5 851:9 |
| specific 763:12,15 | speculating | 855:19 872:3 | statements 803:6 |
| 771:17 776:15 | 761:21 766:24 | 880:14 922:6,21 | states 725:1 726:1 |
| 778:18 783:17 | 767:10 773:4 | 922:23 | 778:15 780:1 |
| 789:11 812:20 | 776:24 825:22 | stands 936:10,11 | 781:20 783:3,19 |
| 814:6 816:8 | 832:25 872:19 | 939:16 959:1 | statistically |
| 827:13 839:8 | spell 752:2 814:8 | start 738:2 763:16 | 869:15 |
| 847:18,18,24 | spending 757:2 | 763:20 764:14 | stats 772:13,20,23 |
| 853:9 859:6 | split 863:4 887:13 | 765:22 767:15 | 772:25 773:3,7,10 |
| 862:17 872:5,11 | spoke 739:7 748:5 | 771:15,20 813:18 | stay 824:8 |
| 872:19 880:6 | 748:5,6,7,14 | 814:4 819:19,20 | stenographic |
| 899:22 900:5,9,24 | 751:17,22 752:1,8 | 825:3,5 831:10 | 868:15 877:10 |
| 905:14 910:15,17 | 754:9,10,20,22 | 834:22 848:11 | 883:18,20,22 |
| 914:16 915:3,4 | 758:4,5 768:18 | 900:7 905:17 | stenographically |
| 917:6 918:15 | 807:14 821:17 | 932:14 944:9 | 725:19 |
| 919:11 920:5 | 826:9,18 845:14 | 971:11,13 972:18 | step 879:3,4,10 |
| 925:6 926:16 | 854:6 | 972:20,21 975:2 | 892:16 |
| 929:15 930:10,11 | spoken 831:19 | 977:17,17 | steps 849:13 |
| 931:24 932:3 | 845:14 859:1 | started 756:14,19 | steven 748:5,19,23 |
| 943:12,12 947:15 | 866:17 | 756:20 781:22 | 749:11,17,20 |
| 949:21,24 950:5 | spreadsheet | 793:10 795:1 | 783:4 784:11 |
| 950:11 954:24 | 732:11,15,18,21 | 821:24 822:9 | stipulation 982:20 |
| 958:6 959:20 | 743:10 867:15 | 825:23 832:1,4,19 | stop 794:5 828:5 |
| 961:7 966:9 970:5 | 940:2 945:25 | 833:5 834:19 | 839:16 889:21 |
| 970:9 971:8 | 946:7,8 955:17,18 | 837:9,10 842:5 | stopped 781:23 |
| 976:24 | 964:23 965:4 | 927:24 961:14,15 | storage 760:19,24 |
| specifically 735:16 | 967:20,22 969:1 | 963:8 977:22,24 | 774:22 |
| 739:23 764:4 | 974:13 979:8 | starting 734:12 | store 903:11 |
| 812:12 832:22 | spreadsheets | 817:3 831:4 | stored 756:2 |
| 846:12 848:14 | 962:11 968:19 | 850:13 857:2 | 769:23 772:24 |
| 851:20 868:10 | stable 793:22 | 865:3 889:11 | 775:15,16,20 |
| 914:15 950:18 | stamp 956:18,22 | 979:3 | 776:2,3 817:11 |
| 953:4 979:2,6 | stamped 956:15 | state 734:21 | 878:3 897:25 |
| specificity 784:12 | 956:19 | 735:24 847:18 | 898:1 902:13 |
| 787:4 810:3 | stand 758:10,11 | 849:3 869:3 | 903:13,14 907:20 |
| 819:17 824:25 | 758:12 818:13 | 870:10 902:17 | 907:24 908:2 |
| specifics 751:10 | 922:4 | 940:22 945:20,24 | 927:17 933:5 |
| 751:12 821:3 | | 958:20 982:9,12 | 942:15 948:1 |

HIGHLY CONFIDENTIAL

[stored - table]

| | | | |
|---|---|--|---|
| 952:15 970:22,23 974:19 stores 897:18 947:8 stories 843:4 890:11 905:7 908:7,10 915:16 915:20 916:18 story 907:18,18,25 street 728:9 729:8 730:8 731:7 stretch 965:6 string 791:17,21 858:8 structure 757:25 758:3 767:9 923:21 structured 908:16 962:17 stuff 828:1 styled 818:8 subcategory 738:4 subject 774:23 844:24,25 848:9 864:5,13 865:16 865:19,22,23 866:14 submission 960:14 submissions 835:2 submit 851:23 submitted 851:3 subscribed 981:21 subsections 745:23 subsequent 887:22 subsequently 911:20 958:19 subsets 789:11 subtopic 740:10 746:3,8,10,15,24 746:25 747:7 | 889:8 successful 778:8 939:15,17,18,23 939:24 940:2 941:6,7,18,18 942:2,8 successor 865:13 suddenly 761:8 sufficient 760:24 suite 727:12 728:10 729:9,17 730:9 super 739:24 923:23 supplied 777:23 856:11 supplies 918:9 support 760:24 supposedly 881:22 sure 737:12,13 738:15 746:2 748:5 755:2,13 756:12,21,21 761:19 764:4 769:9 770:12 771:1,14 772:18 774:19 775:12 784:1 785:1 786:24 790:9 797:3 801:9 815:7 825:7 837:18 839:13 842:2 850:9,17 851:24 852:6 856:25 857:21 861:22 863:14 879:2 880:8 882:14 885:14 886:11 887:17 889:6 890:19 893:12,14 898:14 900:13,16 | 901:1 910:15 911:17 912:5,22 913:4,5,8,21 914:2 923:7,15 925:3 927:5 933:6 935:18 940:19 949:10 953:15,17 963:19 964:12 967:1 969:16 suspended 926:25 927:1,4 swears 733:13 synonymous 777:4 919:4 system 757:23 768:13,16 774:1,3 774:5,6 781:19,22 782:1,3,4,9,13,15 783:2,18,23 784:5 784:7 806:10,13 807:19 808:12,14 808:18,23 809:3 809:22 811:5 814:15 815:12 819:9 820:3,24 823:6 824:14 825:16 827:19,20 827:22 838:2 857:16 863:5,8 864:7 866:2,4,6,12 866:15,21 899:9 903:7 934:7,10,11 954:20 959:4,6,13 960:11 980:2,11 systems 757:21,24 760:8 763:5 767:22 773:12 774:20 782:18 809:1 811:6 821:15,18,20,21 821:22 822:1,4,8 | 822:11,13,18,23 822:24 823:2,2 824:6,10,14,25 848:5 861:15,19 866:18 878:22 882:21 897:10 901:13 902:2,6 903:11 907:24 910:24 916:9,16 919:17,19 927:16 939:10 t t 732:8 876:2 944:25 985:3,3 table 758:14,16 759:1,12,25 760:4 760:13,25 762:7 762:14,24 763:23 763:24 764:16,16 764:17 766:20,24 767:2,14 776:6 786:4,25 787:2 807:10,20 818:5,8 818:13,16,19,22 856:2 861:21 862:6,10,11,13 863:16,16 865:13 868:20 869:11 870:5,9,21 871:3,4 871:6 872:6,11,19 873:1,5 887:12,17 887:20,21 888:22 911:14,19 916:22 916:24 917:1,4,24 919:22 920:21 921:21,24 927:20 927:22 928:3,5,10 928:16,18,19,20 928:24,25 929:2,3 929:6,10,13,16,16 929:17 930:1,3,8,9 |
|---|---|--|---|

HIGHLY CONFIDENTIAL

[table - technique]

| | | | |
|-----------------------|--------------------------|---------------------------|---------------------------|
| 930:10,13,24 | tabular 968:24 | 873:11,12 879:1 | 814:14 819:16,22 |
| 931:13 932:24 | take 778:12,13 | 896:20 916:21,24 | 820:19 822:21 |
| 933:10,14 934:14 | 783:10 784:25 | 929:9 969:25 | 823:18 824:23 |
| 935:12 941:14 | 785:11,16 795:25 | 970:14 | 826:16,20 828:12 |
| 942:13,16 946:25 | 798:16 840:1 | talking 736:3 | 829:3 830:4 |
| 947:1,4,6,7,21 | 868:22 873:21 | 739:20 769:12,21 | 834:13 835:4,7,11 |
| 948:10,19 951:17 | 885:14,15 936:18 | 779:13 786:1,3 | 836:4,7,19 837:15 |
| 955:6,8 956:10 | 942:20 | 789:23 808:24 | 837:20 838:3 |
| 959:18 968:4,7,8 | taken 726:15 | 814:20 815:15,23 | 840:16 842:23 |
| 971:22 972:9 | 757:6 784:17 | 819:1,2 820:25 | 844:18 845:7,17 |
| 973:4,9,9,11,14,18 | 785:22 793:2 | 821:19 827:10 | 846:6 847:6 |
| 973:21 974:1,7,18 | 815:24 816:16 | 831:12,13,16 | 848:22 849:14 |
| tabled 967:25 | 840:10 883:3 | 840:14 848:9 | 932:8,11 957:11 |
| tables 758:7,8 | 884:16 915:23 | 853:1 864:8 866:8 | teams 744:24 |
| 760:16,21,25 | 942:23 951:17 | 873:4 884:20 | 801:3 802:25 |
| 761:12 762:12 | 968:9 976:10 | 887:17 898:22 | 803:16,17 805:21 |
| 764:10,13,18,21 | 981:5 | 928:18 | 811:17 820:6 |
| 765:1,4,6,9,13 | takes 879:11,15 | tao 897:20,22,25 | 827:5 828:17 |
| 766:2,8,13,15,17 | 934:7 977:4 | 903:14,15 908:2 | 829:6 830:24 |
| 766:22 767:1,10 | talk 739:9 741:14 | 923:1,1 924:21 | 832:18 833:1 |
| 767:14,18 768:9 | 742:11 743:5 | 970:17,22 | 843:25 844:10 |
| 769:13,15 770:1 | 745:11,12,19 | target 738:21,25 | 904:12 |
| 775:25 776:2,8,9 | 754:18 756:23 | targeted 736:3,10 | technical 789:17 |
| 776:11,16 786:1,7 | 803:4 805:16 | 736:13,21 739:1,7 | 800:18,22 803:9 |
| 786:10,11,14,19 | 810:7 814:1,2 | 740:20 912:13 | 803:13 810:7,9,9 |
| 806:12,15 862:6 | 818:18,21 819:12 | task 745:8 958:25 | 810:24 819:21 |
| 862:12,17,18,22 | 821:11,13,14 | 958:25 959:1,3,4,4 | 823:12 828:11 |
| 863:3,4 865:13,18 | 823:8 828:1 | 959:5,6,9,12,21,22 | 829:2,13,22 830:3 |
| 869:13 871:11,15 | 830:13 844:17 | 960:1,2,3,7,9,11 | 830:21 835:17 |
| 872:1,12,24 | 847:24 918:22 | tasks 959:12,16,21 | 836:12,18 838:12 |
| 887:11,14,22 | 920:22 929:2,3 | 959:24,25 | 838:16 840:15 |
| 911:12,21,25 | 935:21 | tax 959:24 | 844:17 845:6 |
| 922:7 928:13 | talked 756:25 | taxonomy 787:21 | 846:5,12 847:5,9 |
| 929:20,23 930:4 | 757:24 768:5 | team 756:10,12,15 | 847:10,19 848:21 |
| 930:14,17,20,21 | 805:18 807:17 | 771:15,18 782:19 | 851:7 855:21 |
| 931:1,5,6,8,10,16 | 808:25 815:8 | 800:19,23 802:16 | 896:25 911:1 |
| 931:20,23,25 | 822:3 826:2,10 | 803:10,24 804:1,1 | technically 798:15 |
| 932:1,4,6,10 933:9 | 830:9,10,11,12 | 804:7 805:15,16 | 798:19,22 831:9 |
| tablescolumn | 846:21 847:9,12 | 810:8,25 811:5,21 | technique 811:4 |
| 732:13 | 847:14 850:7,8 | 811:25 812:16 | 828:16,20 |
| | 871:12 873:7,8,10 | 813:9,13,20 814:2 | |

HIGHLY CONFIDENTIAL

[techniques - third]

| | | | |
|--|--|---|--|
| techniques 801:2 807:15 839:22 840:14 847:15 | 804:3 805:14 835:19 843:11,20 855:22 900:15 | 812:22 849:20 850:2,4 869:8 873:2,12 884:6,10 | 822:13 825:6,21 826:23 827:4,5 828:1,2,3 832:21 |
| technologically 759:13,23 | 925:15 926:8 970:13,15 | 884:14 921:15 935:25 942:10 973:22 | 835:12,19,21 836:8,14 839:15 839:21 843:19 |
| technologies 745:7 | terrible 766:5 | theoretically 766:23 924:16 | 844:6 845:16,21 851:18 852:22 |
| technology 760:2 760:9 761:9 763:1 791:4 798:24 | testified 735:3 842:1 870:9 884:23 | thing 814:14 864:24 877:15 879:14 890:18 | 853:8 857:19 860:14 868:19,21 881:17 884:23 |
| 801:14,17 805:24 805:25 806:17,21 806:25 807:1,5 814:22 818:23 820:7 847:24 | testify 737:1 740:9 740:14 741:11,24 742:7 744:19,24 745:2 747:4,13 772:10 774:23 | 904:13 905:16 910:19 917:8,13 918:23 | 903:12 910:13 921:7,13,17 927:24 928:8 |
| tell 740:1 800:22 869:1,2,9,10 885:2 894:11 916:25 936:10 959:1 960:15 966:23,25 | 785:8 800:16,17 803:11 804:12 808:19 810:5 811:1 819:25 822:9 828:25 848:15,20,23 849:1 | things 736:15 737:18 757:22 796:7 803:21 808:13,18 809:7 811:22 815:7 823:19,20 824:14 830:2 841:1 | 929:14,15 934:6 936:7 940:22,23 941:4 943:24 946:16,23 953:7 958:10 960:8 |
| telling 799:24 894:8 | testifying 912:13 965:12 981:8 | 845:17,18,22,22 845:25 868:5 872:7 878:13,13 899:17 916:1 917:3 925:18 926:13 951:13 | thinking 818:7 914:18 |
| ten 839:3 920:19 933:13 946:2,8 951:4,5 | testimony 734:21 737:14 741:13 742:10 747:9 754:19 763:4 773:14 785:14 799:15 810:11 844:14 849:6 870:21 871:7 902:14,16 906:22 909:21 911:17 916:23 971:25 981:12 984:4 | think 734:1 737:2 738:9,10,10 742:23 751:23,24 754:5,20,21 761:4 761:24 763:6 776:17 778:4 782:10 785:4 789:9 790:8,11,21 790:25 791:2,8,11 791:23 792:3,12 792:20 794:17,20 796:25 797:12 799:8 800:14 803:3 818:7 | thinks 799:25 third 727:11 736:18,24 738:7 738:21 739:6,10 739:14 740:6,13 740:19,24 741:4 741:10,16,20 742:2,8,13,17,23 743:2,6,14,17 744:2,7,8,13,20 745:9 746:5,12,20 750:3 777:10 778:8 787:8,12 788:7,10,14,17 789:4 790:14 796:20,22 800:20 800:24 802:24 811:2 813:2 819:23 828:13 829:4,21,24 830:5 |
| tens 881:17 | | | |
| tenure 923:19 | | | |
| term 776:25 777:1 777:3 792:17,19 801:9 863:16 874:19,25 901:1 903:18,21,24 904:3,10,11,17,21 967:3 | | | |
| terminated 896:13 | | | |
| termination 878:14 | texas 729:18 | | |
| terminology 919:6 | text 809:11,12,20 809:21 945:22 | | |
| terms 758:11,13 767:13 776:10 777:6,8 785:2 801:20 803:6,14 | thank 734:6,14 735:7 737:21 738:12,17 800:13 | | |

HIGHLY CONFIDENTIAL

[third - tokens]

| | | | |
|--------------------------|--------------------|---------------------------|-----------------------|
| 830:17 831:11,13 | 789:1,5,7,23 790:3 | 952:19 953:6 | 753:3 756:12,16 |
| 836:20,23 837:19 | 790:14,19,22 | 954:12,14,24 | 757:17 760:20,22 |
| 838:1,14,14 | 791:1,9,25 792:2 | 955:10,15,21 | 763:4 768:12,15 |
| 840:16 844:19 | 792:14,22 793:7 | 956:15,18,19,22 | 769:7 772:10 |
| 845:8 846:7 847:7 | 794:20 795:1,23 | 956:24,24 957:5,8 | 773:16 775:1 |
| 847:25 848:16 | 795:25 797:10,24 | 957:11,23 958:7 | 776:14 784:6,8,18 |
| 850:7,13 851:15 | 798:6 799:7 800:3 | 960:3,5,10 966:5 | 786:23 789:21 |
| 852:7,19 853:13 | 804:17 811:6,22 | 966:15,22 967:10 | 794:8 800:17 |
| 860:13 862:1,25 | 813:3,4,15,15,17 | 967:14 971:18,20 | 803:11 804:12 |
| 873:6,14,25 874:2 | 814:3,15,18 815:1 | 971:23 972:4,14 | 806:9,21 807:2,13 |
| 875:2,2,18,24 | 815:11 816:8,15 | 972:18,19,20,21 | 807:21 808:25 |
| 876:20 879:23 | 817:4 819:11,13 | 972:21,23 973:6 | 811:1 813:20,25 |
| 880:3 889:1,10,14 | 819:14 820:10 | 975:5,6,7,9,10,14 | 814:2 815:16 |
| 889:19 890:11,15 | 821:10 822:2,15 | 975:23,24 976:1,2 | 817:22 821:15,20 |
| 890:17,22 891:1 | 824:7 826:14,16 | 976:4,7,13,16,20 | 821:23 822:9,19 |
| 892:2 893:9 905:2 | 826:20 827:18 | 976:23 977:9 | 822:24 827:20,21 |
| 905:11 906:2,3 | 830:22 836:11 | 978:8 980:13,24 | 828:9 829:10 |
| 907:14 908:1,6 | 838:3 843:24 | 981:6 982:10,18 | 838:10 840:23,24 |
| 909:6,14 910:18 | 844:2,3 845:15 | 982:24 983:7 | 845:20 846:2 |
| 912:3 916:3 | 847:15,18 849:11 | timeline 905:8 | 852:25 854:6 |
| 924:15 939:23 | 850:10 852:12,18 | 907:21 908:3,10 | 859:18,19,25 |
| 974:9,15 | 853:7,14,20 | 908:20,24 909:9 | 860:7 866:5 871:7 |
| thought 821:9 | 854:20,23 855:7 | 909:17,18,25 | 875:10 882:22 |
| thousands 742:21 | 855:12 859:2 | 910:6 | 912:13 916:23 |
| three 825:6,13 | 860:19 861:2,12 | timelines 822:12 | 921:6,8 923:3,8 |
| 915:25 953:8,20 | 861:15 865:19 | 838:21 | 930:12 932:4,8,20 |
| thursday 870:18 | 866:2 871:25 | times 739:15 | 933:3 960:17 |
| time 734:8 748:16 | 872:4,25 873:14 | 749:6 766:19 | 961:1 965:12 |
| 749:5 751:6 | 874:6 877:3,19 | 779:24 780:2 | 976:5 977:1,5,6 |
| 753:11 755:16,17 | 879:17 882:20 | 813:1,22 828:21 | today's 754:19 |
| 756:5,13 757:2 | 884:25 892:12,18 | 875:16 904:13 | 773:14 784:21 |
| 760:4,14 761:7,10 | 905:15 908:11 | 926:11 936:23 | 785:13 821:16 |
| 761:12,23 762:23 | 910:8,11 912:9,15 | 938:14,22 | token 791:16 |
| 766:19 769:4,5 | 913:24 914:23 | tina 748:6 752:1,1 | 864:2,10,11,20 |
| 770:3,5 771:3,7 | 915:10,11 922:14 | today 735:12,21 | 873:21 874:1,2,4 |
| 772:15 773:20 | 923:21 924:7 | 736:10 739:4 | 878:6,8 887:6 |
| 774:12,20 775:22 | 928:11 930:6 | 741:12,24 747:5,9 | 905:22 909:22 |
| 777:23 779:13,20 | 933:7 936:16,20 | 747:23 748:2,10 | 917:14 939:4,7,8 |
| 780:11 783:7,17 | 938:12 944:15 | 748:24 749:8,19 | tokens 829:23 |
| 783:20 787:13 | 947:10 948:16 | 749:24 750:14 | 836:23 837:6,25 |
| 788:8,11,14,18,22 | 950:15 952:6,13 | 751:4,14 752:10 | 838:13,23 839:5 |

HIGHLY CONFIDENTIAL

[tokens - typically]

| | | | |
|---------------------------|-------------------------|---------------------------|---------------------------|
| 873:20 874:8 | 746:11,22,24 | transcript 981:12 | 854:14 862:18 |
| 875:19 937:23,24 | 747:5 800:15,19 | 981:14,16 982:6,8 | 863:4 953:7,20 |
| told 927:8 | 839:12 847:5 | 982:10,13,13,21 | 970:24 971:9 |
| tool 755:1,12,18 | 848:15,20 860:14 | 983:2,2 984:3 | 979:7 |
| 755:20,23 756:2,7 | 889:7,8 899:18 | transition 800:14 | type 738:5,14,16 |
| 757:10,12 759:2 | 902:3 | 953:16,18,19,22 | 738:19 739:5 |
| 772:13 801:21,23 | topics 735:11,14 | transmits 899:9 | 746:3,11 767:3,6 |
| 802:3,7,13 807:23 | 735:15,16 738:3 | treated 854:14 | 767:25 778:23 |
| 808:5,9 809:16 | 748:18,20,23 | trick 896:25 | 779:15 788:6,19 |
| 815:4 825:8 | 749:7 774:24 | tricking 966:24 | 811:9 856:13,14 |
| 838:22,24 839:3,7 | 828:8 849:2,4,7 | tricks 737:4 | 856:15 858:14,23 |
| 934:13 943:2,3,4,5 | 860:11 900:15 | triggered 764:9,12 | 859:3 876:21 |
| 943:5 944:2,3,5,10 | totality 741:19 | true 852:2,5 853:5 | 879:6 889:8,9 |
| 944:11,16,17,18 | 742:15 914:14 | 895:23 937:10 | 900:24 910:2 |
| 944:21,22 945:3,4 | touches 738:25 | 980:1 981:12 | 913:11,14 921:2 |
| 945:5,7,25 946:4 | track 745:9 | 984:5 | 927:17 933:20 |
| 946:25 947:3,5,9 | 767:19 783:19 | truth 734:23,23,24 | 957:24 958:2,5 |
| 947:10,18 948:2 | 786:7,11 885:9,17 | try 737:19 740:2 | 969:14,16 974:3 |
| 951:22,24 952:6 | 886:25 894:14 | 741:22 829:7 | types 736:15 740:4 |
| 952:13,24 955:1,9 | 896:15 907:13 | 861:11 890:3 | 762:10 786:7 |
| 955:16 959:18,22 | 911:4,12 914:21 | 914:19 926:9 | 787:7,11,21 |
| 959:24 960:7,22 | 915:10,18,20,21 | 928:7 943:24 | 793:10 804:14 |
| 960:24,25 961:1,5 | 963:20 | trying 741:22 | 805:2 824:14 |
| 961:9,11,24 962:2 | tracked 748:16 | 782:20,22 796:8 | 856:6 857:3,10,13 |
| 962:5,9,16,25 | 768:9,13,17 | 810:4,10 813:18 | 857:15,22 858:5 |
| 963:5,9,11,12 | 776:19,22 860:12 | 824:5,5 841:14 | 879:18 880:6 |
| 966:5,10,12,15 | 863:9,11,12 | 847:11,12 860:16 | 896:6 914:6,23 |
| 967:16,17 968:4,7 | 885:23 886:2,5 | 868:16 877:1 | 915:25 916:8,25 |
| 968:13,16,22 | 887:5 889:9 | 887:16 899:16 | 924:11 927:25 |
| 970:5,24 971:15 | 899:17 902:18 | 900:12 906:8,9 | 928:1 958:8,13,15 |
| 972:8 974:16,20 | 903:6 911:9,24 | 926:8 927:25 | 958:18,22 |
| 976:17,21 977:13 | 916:1,14 917:8,13 | 971:24 | typical 779:3 |
| tools 745:6,7 | 917:23 | ts 872:16,22,23 | 780:3 824:3 |
| 772:11 774:8 | tracking 749:2 | turn 744:16 | 878:21 879:9 |
| 782:17 807:15 | 768:8 916:8 | turning 979:8 | typically 743:6 |
| top 868:4,5 876:15 | 944:14 | tv 876:14 | 777:4 779:1 |
| 897:22 | tracks 903:7 | two 754:7,8 | 780:12 787:14,17 |
| topic 738:4,21 | train 820:16 | 775:21 778:14 | 803:25 811:24 |
| 740:8 744:5,9,10 | transcribed | 789:19 792:9 | 841:12 855:15 |
| 744:19 745:2,4,6 | 981:11 | 797:25 798:16,20 | 871:21 873:21 |
| 745:12,19,22,24 | | 812:5 818:14 | 876:7 877:15 |

HIGHLY CONFIDENTIAL

[typically - uniquely]

| | | | |
|---|---|---|---|
| 879:10,14 890:25 894:6 896:1 897:23 916:12,13 916:16,19 925:11 928:10 929:16 943:20 968:25 | 812:11 813:14 817:8,12 821:15 824:24 828:21 830:20 834:6 839:11 843:21 844:22,23 850:10 854:4,19,21 856:25 857:21 858:11,21 859:16 860:9,15,15 861:20 864:7 865:1,7 866:3 868:11 870:12,22 870:25 871:1 873:25 874:11 876:10 877:1 879:2 880:2 881:12 885:12 886:9 887:17 889:16 890:3,10 893:12 898:15,15 901:1 906:25 912:6,22 913:25 914:14,19 916:17 920:24 925:1,24 927:3 928:1,9,9,25 932:11 935:4 939:9 940:10 949:10 950:10 953:24 954:1,11 955:14 957:7 966:23 971:21,24 974:2 975:7,9 | 758:12,15,22 759:3 762:11,16 762:25 763:22,24 764:15,17,23 765:5,14 766:1,7 766:21 768:22 773:24 776:3,21 779:24 782:22 783:24 786:6,13 795:5 800:15 801:23 802:12,23 807:4,9,18 808:9 808:23 809:3,5 814:20 815:12,22 816:14 817:6,24 818:17,20 820:13 825:14 827:21 831:2,18,23,25 832:13 834:16,25 837:4,11 838:12 838:21 839:4 850:18 852:10,15 854:8,13 855:3 856:2 857:25 858:7,18 860:22 861:14 862:5 863:2,25 864:18 865:12 866:9,21 869:12 871:17,25 872:5,23,25 875:10 879:21 882:17 885:4 887:10,19 888:2 888:21 891:12,23 901:12,14,23 902:23 904:3 910:12 911:13,18 911:22 917:19,22 922:12 923:17 924:1 926:9 927:13 930:10 | 933:2,11 934:19 935:22 936:25 937:8,14,22 938:6 939:6,10,20 940:3 942:1,14 944:11 944:22 945:4 946:11 947:7,19 948:8,9,13,15 949:2,5,8,14,20 951:6,21 952:3,24 953:18,23 954:9 955:18 956:7,23 957:10,21 958:3 958:16 960:21 961:10 965:15,17 966:8,13 968:3,10 970:21 971:9,14 972:7,16,22 973:5 973:15 974:6,11 974:12,17 975:1 975:17 976:5 977:1 978:1,16 979:12,18 980:1,8 980:20 understands 877:8 understood 737:7 755:2 788:4 796:8 799:14 857:12 866:6 undertaking 795:10 undertook 849:14 unfortunately 936:1 unify 795:6 unintentional 738:10 unique 917:14 uniquely 925:6 949:3 |
| u | | | |
| u 814:9 876:2 ultimately 878:19 un 957:13 unable 740:1 845:19 847:17,23 866:19 876:9 945:14 unaware 771:24 772:2 781:13 uncertain 848:23 856:22 uncertainty 940:17 unclear 737:3,11 774:2 781:6 834:8 890:7 uncover 845:19 underscores 818:14 understand 735:15 736:20,25 737:8 738:8,22,23 738:24 739:1 741:23 744:9,10 745:10 750:15,19 750:20 751:5 753:3,14,15 754:1 754:24 759:15 762:2 763:5 766:11,18 767:2 769:8 785:15 789:16 792:8 795:20 796:9 799:15 810:11 | | | |

HIGHLY CONFIDENTIAL

[unit - users]

| | | | |
|---|--|---|--|
| unit 917:11 918:1 977:4 | 807:7 809:11 810:22 811:2,3 | 802:18 811:2 819:23 824:1,2 | 911:6,15 912:3,4,8 912:10,12,16,18 |
| united 725:1 726:1 | 819:23,25 821:2 | 828:13,18 829:4 | 912:21 913:1,11 |
| unnecessary 737:15 | 828:13,15 829:4,5 830:5,6,18 833:8 | 829:23 830:25 831:7 832:10,14 | 913:14,17,17 914:15,23 915:10 |
| unpack 856:21 | 833:16 836:20,21 | 836:20,22 837:6 | 915:15,23 924:2,6 |
| unsuccessful 780:19 | 840:16,18 841:7 842:15 843:16 | 837:24 838:13,23 839:5,8 840:16 | 924:13 925:12 937:23 938:5,22 |
| unusual 811:7,11 811:14,20,21 812:16,17,17 814:10 816:21 817:15 826:5 | 844:19,20 845:8,9 846:7,9 847:7,8,25 848:1,17,18 855:14,20 876:16 881:13 886:24 | 841:2,22 842:10 842:22 843:12 844:19 845:8 846:7 847:7,25 850:6,15,20,22 | 939:7 963:15,15 982:3 985:1 user's 793:16 865:23 874:1,2 880:5 889:20 |
| update 765:7 804:4 | 891:4,19 892:1 905:1 919:23 | 851:7 853:13,24 854:16,24 855:2 | 891:2 898:11,12 898:19 899:25 900:8 901:19 |
| updated 853:21 | 920:22 928:15 | 855:25 859:22 | 905:22,24 907:20 |
| upgraded 834:2 | 929:16 935:12 | 861:17 862:6 | 908:2,17,23,23 |
| ups 849:5 851:2 878:24 | 955:16,16 958:19 963:9,11,13 | 863:10,13,17,18 864:2,3,12,13 | 909:9,16,18,23,25 910:3 915:23 939:5 |
| url 791:20 801:15 802:5 803:19 804:5 806:19 807:12 808:3,14 809:6,17,20 818:25 897:7 917:10 | 966:15 967:16 968:13,15,25 970:13 useful 745:25 921:14 935:23 | 865:14,14,15,23 872:14 873:6,15 874:5 875:19 876:21 877:16,20 877:24 878:1,4,14 878:15 879:4,5,10 879:12,13,15,25 | users 766:7 786:5 787:3 788:24 789:10 798:5,7 804:23 814:17 815:19 816:5,12 816:22 817:3 824:1 829:15 833:14,17 834:2 838:25 841:2,5,19 841:25 842:14,25 843:22 859:12 860:19 861:3 862:1,24 866:22 873:19 874:8 875:5,22 879:18 883:16 889:1,14 889:17,19 890:14 891:4 899:20 902:1,19 904:23 905:1,5,12,19 |
| urls 801:9,12 925:15 | 733:9 739:5,21,22 739:22 740:4,5,11 740:19,23 741:9 742:2,6,8 743:7,11 743:14 744:8,12 746:19 747:3 758:19,20,25 766:18 767:19 786:11,17,19,22 787:7,11,15,21 788:6,22,23,23 789:3,7,14 790:3 791:5,12,16 792:11 793:21,23 794:2,3,3,11 798:5 798:17 800:6,25 | 880:16,18,20,21 883:10,10,12 889:20,22,22 890:11 891:12 892:4,10,11,14,17 892:23 893:2,4,10 894:17 895:14,14 897:24 898:8,8,12 898:16,17,21,23 898:25 899:3,4 900:1,9,18 901:9 901:18 902:11,24 903:3 907:2,3,16 907:25 909:2,7,15 909:22 910:5 | |
| usage 767:22 929:23 930:5,15 930:18 931:14,19 | | | |
| use 744:21,22 747:12 749:24 766:8 767:18 779:1,7 783:20 784:3,6,8,20 785:13 793:15 796:8 798:3 800:20,21,24 801:1,20 803:6,14 804:3,10 805:14 | | | |

HIGHLY CONFIDENTIAL

[users - way]

| | | | |
|--|--|---|--|
| 906:2,12,14,19 907:6,7,10,14 908:5,8 910:25 915:9,19 916:17 917:14 926:4,7,15 926:19 929:18,18 937:19 938:11,15 938:19 939:12 941:15 uses 829:13 878:8 890:11 961:11 uttered 849:22 | 957:12 971:1 values 868:25 970:25 979:16 variant 923:18 various 770:7 813:22 828:19,21 878:2 911:9 930:6 vc 725:6 726:6 veritext 733:12 982:7,9,11 version 764:8,12 790:19 791:15 815:4 843:7 863:3 945:18 951:16 957:13 versioning 790:12 790:15,18 versions 814:23 815:3 853:8 versus 782:24 video 725:14 726:19 videoconference 725:14 726:19 727:2 728:2 729:2 730:2 731:2 734:12 videographer 731:18 733:5,11 785:20,23 840:8 840:11 884:11,14 884:17 942:21,24 980:22 videotaped 726:15 view 775:22 962:25 viewing 772:16 views 963:2 visit 897:1 visited 893:2 | visiting 893:10 896:17 visits 892:4,23 volume 725:17 732:3 733:8 867:24 voluminous 967:4 w w 727:6 731:7 w3c 778:21 780:22 waived 785:9 982:23,23 waiving 982:20 wangdra 730:14 733:24 want 735:23 737:13 739:24 743:18 749:12 751:10,11,23 772:14,14 782:20 783:21 784:23 790:9 793:8 799:15 810:12,21 825:7 829:1,12 830:20 833:13,13 835:24 838:19 842:2 848:7 849:3 849:21 850:9,12 851:1 854:4 856:24 859:7 861:5 867:11 868:10 869:6,16 877:4 879:2 883:24 884:11 886:18 890:18 892:22 900:13,16 902:16 911:17 920:21 923:6 928:5,15 946:3 966:17 | wanted 750:14 753:3 755:2 759:21 762:1 763:8 765:20 775:2 782:14 790:16,19 814:1,2 819:18 839:13,19 910:16 916:16,17 935:9 955:13 959:5 warehouse 773:25 776:4,6 871:22 916:15 931:23 washington 725:23 727:13 way 737:19 741:2 741:4 742:1,21 743:1,25 744:12 744:19 748:15 761:20 766:14 773:21,22 779:14 779:21 787:24 789:13,16,25 790:1,2,13,16,22 791:11 792:2,13 792:15,21 793:5 799:24 801:22 808:5 812:15 816:17 817:13 820:13 833:23 835:19 843:3 847:24 850:11,21 855:11,18 856:21 863:25 872:23 874:1,4,7 875:20 875:22 876:17 879:9 880:25 888:2 889:25 890:1,13 895:12 902:17 922:6 923:18,18 926:18 |
| v | | | |
| v2 834:3 v2.1 852:22 853:4 v2.3 853:4 v2.3. 852:22 vague 787:9 856:16 858:25 860:21 862:3 863:1 877:8 879:7 889:15 902:4 903:23 904:6 906:5 914:9 916:11 940:13 941:3,20 valid 801:11 806:3 806:19 807:11,23 808:2,11,20 809:10,19,24 818:24 819:4,5,9 819:14 valuable 790:10 797:18 valuation 914:22 914:22 value 750:3 806:19 883:1 912:17,20,25 913:10,16 914:1 915:8,9 937:10,13 | | | |

HIGHLY CONFIDENTIAL

[way - year]

| | | | |
|--|--|---|--|
| 927:15 929:11 934:17,23 943:24 944:14 949:22,25 956:13 960:8 967:14 968:11 978:7 ways 739:13 740:18,21 741:9 741:12,25 742:15 743:12,15,19,20 743:24 766:15 777:23 778:4,14 779:25 788:16,25 789:3,15 790:25 791:9 792:10 793:4 801:5,6 826:4 829:7 831:21 850:6,9,13 855:1 875:18 904:11 920:4 926:20 930:6 950:18 we've 754:7 783:6 792:17 830:9 839:10 844:25 849:11 873:8 888:22 897:3 916:21,24 942:17 weaver 728:7 868:22 web 725:14 726:19 727:2 728:2 729:2 730:2 731:2 831:14,15,17,21 892:4,12 893:2 website 891:13,15 892:23 893:9,11 893:15,24 895:7 897:2 910:20 962:12,15,19,22 968:16,23 | websites 829:25 836:24 838:1 875:4 892:2 welcome 735:6 went 842:15 895:7 964:25 whereof 981:20 whitelisting 748:15 749:2 whitelists 748:16 944:18 wholly 922:19 967:5 wide 813:18 widely 882:19 wind 882:7,10 883:3 885:5,7 window 813:3 872:25 922:14 936:17 withdraw 760:1 765:2,25 770:9 773:7 774:13 777:13 786:9 794:24 816:24 862:21 883:11 893:6,17 916:5 943:24 974:11 978:22 witness 733:13 736:1,14 750:8 839:17 870:14 877:8 981:20 982:13,16 witnesses 810:20 849:1 word 806:1 810:22 818:14 849:21 862:11 words 776:10 958:11 | work 737:20 751:15 756:17 757:12 764:9 766:2 773:14 785:4 796:5 849:19 874:22 878:22 879:9 895:12,13 899:11 902:7 941:25 971:10 worked 755:17 773:3 808:6,9 809:4 821:11 830:22 835:19 847:25 861:12 864:1 921:8 923:18 working 811:18 839:11 932:8 works 777:24 783:11 787:24 808:23 822:21 866:9 888:3 891:17 901:14,22 934:10 976:25 worksheet 959:17 worth 790:11 915:11 wound 882:6 wrap 945:21 wright 727:9 733:20 write 818:11 writes 848:19 writing 809:13 written 747:21 757:4 760:10,12 760:13 799:6,7 800:5,12 848:14 890:25 918:6 | wrong 751:24 752:5 857:1 862:10 wrote 808:1,2 www 862:19 887:13 911:21 x x 732:1,8 814:9 851:8 863:17 981:16 xfn 960:14,18,22 960:24 961:3,9,10 962:1,7,8 978:2 979:4 xml 791:6 xu 814:5 819:20 825:5 xx 983:1 y y 944:24,25 yeah 759:22 761:19 767:8 776:11 783:9,15 784:25 785:15 786:3 799:6 818:3 819:2 826:2 832:21 839:17 840:20 868:7 869:5 880:8 882:13 891:10 899:6 902:5 904:9 913:7 915:1 918:18 940:14 941:2,22 948:5 979:5 year 742:16 770:16,16 774:20 774:20 776:18 913:24 967:2 |
|--|--|---|--|

HIGHLY CONFIDENTIAL

[years - zoom]

| |
|--|
| years 742:22 784:1 793:1 813:24 816:9 838:6 839:3 860:6 861:21 953:8,13 953:20 963:6,10 |
| z |
| zarakhovsky 826:23 zarashaw 826:22 zero 938:11,15,18 979:22 980:6,7 zoom 725:12 |

Federal Rules of Civil Procedure

Rule 30

(e) Review By the Witness; Changes.

(1) Review; Statement of Changes. On request by the deponent or a party before the deposition is completed, the deponent must be allowed 30 days after being notified by the officer that the transcript or recording is available in which:

(A) to review the transcript or recording; and

(B) if there are changes in form or substance, to sign a statement listing the changes and the reasons for making them.

(2) Changes Indicated in the Officer's Certificate. The officer must note in the certificate prescribed by Rule 30(f)(1) whether a review was requested and, if so, must attach any changes the deponent makes during the 30-day period.

DISCLAIMER: THE FOREGOING FEDERAL PROCEDURE RULES ARE PROVIDED FOR INFORMATIONAL PURPOSES ONLY.

THE ABOVE RULES ARE CURRENT AS OF APRIL 1, 2019. PLEASE REFER TO THE APPLICABLE FEDERAL RULES OF CIVIL PROCEDURE FOR UP-TO-DATE INFORMATION.

VERITEXT LEGAL SOLUTIONS
COMPANY CERTIFICATE AND DISCLOSURE STATEMENT

Veritext Legal Solutions represents that the foregoing transcript is a true, correct and complete transcript of the colloquies, questions and answers as submitted by the court reporter. Veritext Legal Solutions further represents that the attached exhibits, if any, are true, correct and complete documents as submitted by the court reporter and/or attorneys in relation to this deposition and that the documents were processed in accordance with our litigation support and production standards.

Veritext Legal Solutions is committed to maintaining the confidentiality of client and witness information, in accordance with the regulations promulgated under the Health Insurance Portability and Accountability Act (HIPAA), as amended with respect to protected health information and the Gramm-Leach-Bliley Act, as amended, with respect to Personally Identifiable Information (PII). Physical transcripts and exhibits are managed under strict facility and personnel access controls. Electronic files of documents are stored in encrypted form and are transmitted in an encrypted fashion to authenticated parties who are permitted to access the material. Our data is hosted in a Tier 4 SSAE 16 certified facility.

Veritext Legal Solutions complies with all federal and State regulations with respect to the provision of court reporting services, and maintains its neutrality and independence regardless of relationship or the financial outcome of any litigation. Veritext requires adherence to the foregoing professional and ethical standards from all of its subcontractors in their independent contractor agreements.

Inquiries about Veritext Legal Solutions' confidentiality and security policies and practices should be directed to Veritext's Client Services Associates indicated on the cover of this document or at www.veritext.com.

HIGHLY CONFIDENTIAL

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA

IN RE: FACEBOOK, INC., MDL No. 2843
CONSUMER USER PROFILE Case No.
LITIGATION 18-md-02843-VC-JSC

This document relates to:
ALL ACTIONS

HIGHLY CONFIDENTIAL

ZOOM DEPOSITION OF FACEBOOK's 30(b)(6)
CORPORATE REPRESENTATIVE - SIMON CROSS
(Reported Remotely via Video & Web Videoconference)
London, England (Deponent's location)
Tuesday, June 21, 2022
Volume 5

STENOGRAPHICALLY REPORTED BY:

REBECCA L. ROMANO, RPR, CSR, CCR
California CSR No. 12546
Nevada CCR No. 827
Oregon CSR No. 20-0466
Washington CCR No. 3491
JOB NO. 5291734
PAGES 986 - 1222

Page 986

HIGHLY CONFIDENTIAL

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA

IN RE: FACEBOOK, INC., MDL No. 2843
CONSUMER USER PROFILE Case No.
LITIGATION 18-md-02843-VC-JSC

This document relates to:
ALL ACTIONS

DEPOSITION OF SIMON CROSS, taken on
behalf of the Plaintiffs, with the deponent located
in London, England, commencing at
1:37 p.m., Tuesday, June 21, 2022, remotely
reported via Video & Web videoconference before
REBECCA L. ROMANO, a Certified Shorthand Reporter,
Certified Court Reporter, Registered Professional
Reporter.

HIGHLY CONFIDENTIAL

APPEARANCES OF COUNSEL

(All parties appearing via Web videoconference)

For the Plaintiffs:

KELLER ROHRBACK L.L.P.

BY: DEREK W. LOESER

BY: CARI CAMPEN LAUFENBERG

BY: ADELE A. DANIEL

BY: EMMA WRIGHT

Attorneys at Law

1201 Third Avenue

Suite 3200

Seattle, Washington 98101

(206) 623-1900

dloeser@kellerrohrback.com

claufenberg@kellerrohrback.com

adaniel@kellerrohrback.com

ewright@kellerrohrback.com

/////

HIGHLY CONFIDENTIAL

APPEARANCES OF COUNSEL

(All parties appearing via Web videoconference)

For the Plaintiffs:

BLEICHMAR FONTI & AULD LLP

BY: MATTHEW MELAMED

BY: ANNE K. DAVIS

BY: LESLEY E. WEAVER

Attorneys at Law

555 12th Street

Suite 1600

Oakland, California 94607

(415) 445-4003

mmelamed@bfalaw.com

adavis@bfalaw.com

lweaver@bfalaw.com

/////

HIGHLY CONFIDENTIAL

APPEARANCES OF COUNSEL(cont'd)

(All parties appearing via Web videoconference)

For Facebook, Inc.:

GIBSON, DUNN & CRUTCHER LLP

BY: AUSTIN SCHWING

Attorney at Law

555 Mission Street

Suite 3000

San Francisco, California 94105-0921

(415) 393-8200

aschwing@gibsondunn.com

and

BY: MATT BUONGIORNO

Attorney at Law

2001 Ross Avenue

Suite 2100

Dallas, Texas 75201

(214) 698-3204

mbuongiorno@gibsondunn.com

/////

HIGHLY CONFIDENTIAL

APPEARANCES OF COUNSEL(cont'd)

(All parties appearing via Web videoconference)

For Facebook, Inc.:

GIBSON, DUNN & CRUTCHER LLP

BY: HANNAH REGAN-SMITH

Attorneys at Law

1801 California Street

Suite 4200

Denver, Colorado 80202-2642

(303) 298-5735

hregan-smith@gibsondunn.com

and

BY: PHUNTSO WANGDRA

Attorney at Law

1881 Page Mill Road

Palo Alto, California 94304-1211

(650) 849-5206

pwangdra@gibsondunn.com

/////

HIGHLY CONFIDENTIAL

APPEARANCES OF COUNSEL(cont'd)

(All parties appearing via Web videoconference)

JAMS

BY: DANIEL B. GARRIE

Special Master

555 W. 5th Street

32nd Floor

Los Angeles, California 90013

(213) 253-9706

dgarrie@jamsadr.com

ALSO PRESENT:

Ian Chen, Associate General Counsel,

Meta Platforms

John Macdonell, Videographer

/////

HIGHLY CONFIDENTIAL

1 I N D E X

2 DEPONENT EXAMINATION

3 SIMON CROSS PAGE

4 VOLUME 5

5 BY MR. MELAMED 998

6 BY MR. LOESER 1139

7 BY MR. SCHWING 1206

8 BY MR. LOESER 1207

9

10

11 E X H I B I T S

12 NUMBER PAGE

13 DESCRIPTION

14 Exhibit 429 Native Excel Spreadsheet 1007

15 C2_019_FB-CA-MDL-02936297;

16

17 Exhibit 430 Message Summary, 1101

18 FB-CA-MDL-02898663 -

19 FB-CA-MDL002898668;

20

21 Exhibit 431 Native Excel Spreadsheet, 1107

22 C2_113a_FB-CA-MDL-02898670;

23

24 Exhibit 432 Native Excel Spreadsheet, 1111

25 FB-CA-MDL-02674226;

Page 993

HIGHLY CONFIDENTIAL

1 E X H I B I T S(cont'd)

2 NUMBER PAGE

3 DESCRIPTION

4 Exhibit 433 Email String Subject: V1 1116

5 extensions,

6 FB-CA-MDL-01952426 -

7 FB-CA-MDL-01952427;

8

9

10 PREVIOUSLY MARKED EXHIBITS

11 NUMBER PAGE

12 Exhibit 339 1171

13

14

15

16

17

18

19

20

21

22

23

24

25 /////

HIGHLY CONFIDENTIAL

1 London, England; Tuesday, June 21, 2022 09:04:04

2 1:37 p.m.

3 ---o0o---

4

5 THE VIDEOGRAPHER: Okay. We're on the 01:36:58

6 record. It's 1:37 p.m. on June 21st, 2022. This

7 is Volume 5 in Simon Cross's deposition. We're

8 here in the matter of Facebook Consumer Privacy

9 User Profile Litigation.

10 I'm John Macdonell, the videographer with 01:37:15

11 Veritext.

12 Mr. Cross has previously been sworn, but

13 would counsel please identify themselves for the

14 record.

15 MR. MELAMED: Good morning. This is 01:37:26

16 Matt Melamed from Bleichmar Fonti & Auld on behalf

17 of plaintiffs. With me presently is Adele Daniel

18 from Keller Rohrbach, also on behalf of plaintiffs.

19 And -- I'm sorry -- also Anne Davis from

20 Bleichmar Fonti & Auld on behalf of plaintiffs. 01:37:43

21 MR. SCHWING: Good morning. This is

22 Austin Schwing of Gibson, Dunn & Crutcher on behalf

23 of Meta Platforms Inc. I'm joined by Ian Chen,

24 Hannah Regan-Smith, and also Phuntso Wangdra and

25 Matt Buongiorno. 01:38:00

Page 995

HIGHLY CONFIDENTIAL

1 SPECIAL MASTER GARRIE: This is 01:38:07
2 Special Master Garrie here on behalf of the Court.
3 MR. MELAMED: Good morning. Before we
4 start today's testimony, I just want to identify a
5 few documents or sources of information that 01:38:29
6 Mr. Cross discussed yesterday that we want to
7 follow up with Facebook regarding their production.
8 One is the Can tables, which Mr. Cross, I
9 believe, identified yesterday, as tables initiated
10 in or around 2019 operational, in or around 2020, 01:38:53
11 that identified the calls that -- certain calls
12 that apps could make on either data.
13 Another is the Did tables, which were
14 initiated around the same time. And those indicate
15 the calls -- the calls that return user 01:39:21
16 information, where the information was returned, so
17 those two seem to work in parallel. I apologize if
18 I'm misstating. I don't intend to. What those
19 tables were, I think Mr. Cross's testimony on those
20 was clear yesterday. 01:39:37
21 The third is Pearly Gates. Which
22 Mr. Cross identified as a precursor or the
23 precursor to the capabilities tool.
24 And the fourth is the Launch Manager,
25 which was identified as a tool to track privacy -- 01:39:49

Page 996

HIGHLY CONFIDENTIAL

1 a number of privacy decisions that were made 01:39:55
2 internally at Facebook. Same thing with those two.
3 I don't mean to misstate what Mr. Cross testified
4 about those. His testimony is what it was. I'm
5 just identifying them for the record. 01:40:09

6 Three of those four, the Can tables, the
7 Did tables and Pearly Gates, I do not believe have
8 been identified previously. The plaintiffs in the
9 litigation, the fourth Launch Manager has been
10 identified previously, and plaintiffs have 01:40:23
11 requested that previously.

12 And would -- are going to request it
13 again.

14 But I just wanted to put that on the
15 record that we will follow up as well. 01:40:34

16 MR. SCHWING: Okay. Well, I appreciate
17 you raising the issues that you're concerned about,
18 Matt -- Mr. Melamed, you and I are friendly, so I
19 apologize for the "Matt."

20 But I know Mr. Cross has previously 01:40:53
21 identified Pearly Gates in a previous deposition
22 session, and the same is true of the Did table.
23 And you already knew about the Launch Manager.
24 Happy -- happy to talk to you, you know, about
25 document discovery issues. I don't think this is 01:41:12

Page 997

HIGHLY CONFIDENTIAL

1 the right time. But, you know, we can certainly 01:41:16
2 discuss that.

3 And I also wanted to -- to note, as I did
4 before we got on the record, that Mr. Cross had a
5 few things that he wanted to clarify, some 01:41:26
6 additional information related to some of the
7 questioning yesterday.

8 So at a convenient point in the
9 deposition, whenever you think it's appropriate, he
10 would like to share that. 01:41:38

11 MR. MELAMED: Thank you.

12

13 SIMON CROSS,
14 having been previously administered an oath, was
15 examined and testified as follows: 01:41:41

16 EXAMINATION (resumed)

17 BY MR. MELAMED:

18 Q. So, Mr. Cross, you understand you're
19 still under oath, correct?

20 A. I do. 01:41:45

21 Q. What --

22 SPECIAL MASTER GARRIE: Are we on the
23 record?

24 MR. MELAMED: Mr. --

25 Special Master Garrie, sorry. 01:41:49

Page 998

HIGHLY CONFIDENTIAL

1 SPECIAL MASTER GARRIE: Yeah, I am sorry 01:41:51
2 for interrupting. I was going to say, in the
3 interest of efficiency, it would be most helpful if
4 the parties could meet and confirm on the issues
5 decided and discussed, and add the issue to 01:41:59
6 mediation tracker so that way we have a record of
7 these ongoing issues.

8 If there are downstream issues about each
9 of these different things, I just wanted to notate
10 that now because I have other issues that I've 01:42:13
11 written down that haven't been raised on the
12 mediation tracker, and I'm just assuming they're
13 being resolved.

14 So if the parties have a process that's
15 great. I just encourage them to document it so we 01:42:24
16 don't have any downstream surprises with additional
17 folks coming -- being required in the interest of
18 completeness. And if you could just document that
19 from the plaintiff's side, that would very helpful.

20 MR. MELAMED: Will do. Thank you. 01:42:41

21 Q. (By Mr. Melamed) So, Mr. Cross, your --
22 Mr. Schwing indicated that you have some additional
23 testimony or clar- -- testimony or clarifying
24 testimony regarding some things you talked about
25 yesterday. 01:42:55

HIGHLY CONFIDENTIAL

1 So now would be a great time to provide 01:42:55
2 that clarification.

3 A. Sure. Yeah. Yesterday we were talking
4 about some of the tables in the capability tool.

5 Regarding the capability tool, one of those tables 01:43:07
6 was the -- the Grant table, and I think I mentioned
7 that the ID, start request ID and end request ID
8 might refer to entries in the Log table.

9 My understanding is actually they --
10 they're not entries in the Log table; they're just 01:43:28
11 IDs which are local to this table.

12 So, yes, that's one thing I wanted to --
13 to clarify.

14 Q. Do those IDs cross-reference any other
15 tables? Are they identified in any other tables 01:43:41
16 relevant to the capabilities tool?

17 A. My understanding is they -- they're not
18 cross-referenced in another table.

19 Q. Thank you.

20 Do you have anything else you'd like to 01:43:54
21 clarify from yesterday's testimony?

22 A. Yesterday you asked me some questions
23 about -- the rest API and FQL. I can say that
24 the -- they were deprecated or the deprecation was
25 announced in 2014, I believe in August. In API 01:44:11

Page 1000

HIGHLY CONFIDENTIAL

1 Version 2.1. 01:44:17

2 They remained available to developers for
3 the duration of the API existed, which was until
4 October of 2016. After that point, they would only
5 have been available to -- to apps via a whitelist. 01:44:31

6 And my understanding is that the last
7 third-party apps were removed from the rest API
8 whitelist in around October 2018.

9 And -- and also my understanding is
10 the -- the last third-party app was removed from 01:44:51
11 the -- so the first one I mentioned was the FQL --
12 sorry -- FQL, in around October 2018.

13 And then my understanding is that the
14 last third-party app was removed from the whitelist
15 that gave access to the rest API in around 01:45:08
16 February 2020.

17 Q. Thank you.

18 Is there a list somewhere of the apps
19 that were permitted to access the rest API after
20 2016? 01:45:30

21 A. That information is -- is -- as I
22 understand, it would be available in the -- in the
23 Grant table, which you have access to.

24 Q. Okay. And is the -- and you're talking
25 about the capabilities grant -- tool Grant table, 01:45:44

Page 1001

HIGHLY CONFIDENTIAL

1 correct? 01:45:47

2 A. That's correct. My understanding is that
3 access to those two legacy APIs was gated by the
4 capability tool and, therefore, the apps that would
5 have had access to query those APIs, would have 01:45:57
6 been listed in the capability tool.

7 Q. And is the answer the same for FQL, that
8 the list of apps that were permitted to access user
9 information by FQL queries is after 20 --
10 October 2016 is indicated in the capabilities tool 01:46:17
11 parens table?

12 A. That's my understanding too, yes.

13 Q. Do you have any other clarifications or
14 follow up you want to offer regarding yesterday's
15 testimony? 01:46:36

16 A. You asked me when Facebook began removing
17 capabilities from apps that were not being used by
18 those apps. My understanding is that that process
19 began in October 2018.

20 Q. So prior to -- is it correct, then, to 01:47:03
21 say, that prior to October 2018, Facebook was not
22 removing capabilities from apps where those apps
23 were not using the capabilities?

24 MR. SCHWING: Object to form.

25 THE DEPONENT: There was no automatic 01:47:24

HIGHLY CONFIDENTIAL

1 process in place until October 2018 from removing 01:47:26
2 capabilities from apps that were not actively being
3 used. There would have been manual processes in
4 place, manual actions in place. But that was the
5 moment, as I understand it, that automated process 01:47:43
6 was introduced.

7 Q. (By Mr. Melamed) And I apologize if this
8 is asking you to testify about something you
9 already talked about.

10 What was the automated process that 01:47:55
11 commenced in October 2018 regarding the removal of
12 capabilities from apps that were no longer using
13 those capabilities?

14 A. My understanding is -- a script is run to
15 look for, when API calls are being made that check 01:48:18
16 a given capability, and if there was no indication
17 that the app is making API calls that check the
18 capability within a time period, then the system
19 will remove the capability from the app.

20 Q. What was the time period that -- that 01:48:43
21 triggered the automatic removal you're talking
22 about?

23 A. My understanding is that the time period
24 is 90 days.

25 Q. Was there any ability to override that 01:48:57

HIGHLY CONFIDENTIAL

1 automated removal of a capability that had not been 01:49:00
2 used by an app in the past 90 days after
3 October 2018?

4 A. My understanding is that where there is
5 a -- I think the field name is "review date." 01:49:13
6 I'm -- I'm -- I can't remember the exact field name
7 here. We -- we looked at it yesterday. But I
8 think it's auto -- you have -- you have the thing
9 in front of you -- I don't -- I'm not allowed -- I
10 don't have notes in front of me on this. 01:49:33

11 So maybe you could refresh my memory of
12 the column we're discussing here.

13 Q. Yeah. I'm -- I'm -- do you recall which
14 table it's in? I'm happy to pull that exhibit up.

15 A. The Grant table. 01:49:47

16 Q. Okay. Thank you.

17 Okay. Can you see my screen?

18 A. Yes.

19 Q. So this is -- and I'll zoom in a little
20 bit. This is Exhibit 428, which is the 01:50:13
21 capabilities tool Grant table. I can resize these
22 columns quickly.

23 Do you see -- as I'm doing this --
24 actually let me stop so you can see them. Before I
25 resize them, do you see the column that indicates 01:50:28

HIGHLY CONFIDENTIAL

1 the ability to override the automated removal after 01:50:29
2 90 days of a capability -- let me rephrase that.
3 The automated removal of a capability
4 that has not been used by an app in the past
5 90 days? 01:50:43
6 A. That's column J.
7 Q. Column J. Is "expiration time"?
8 A. My understanding is the -- if an app
9 has -- if there was an expiration time listed for
10 an app, then the capability won't be removed from 01:50:57
11 the app until the expiration time even if it's not
12 being used by the app.
13 Q. So for instance, in row 5 column J, where
14 the expiration time for this app capability pair is
15 March 16th, 2022, at 3:43 p.m. 01:51:16
16 That indicates that the 90-day automated
17 removal of that capability from that app is
18 suspended until March 16th, at which time the
19 capability will be removed from the app?
20 A. That's my understanding, yes. 01:51:40
21 Q. And, again, we talked about this
22 yesterday. But do you -- and so I apologize if
23 I'm -- I don't mean to make miss- -- restate what
24 you've already testified about. I'm just trying to
25 understand these columns and context of one another 01:51:55

Page 1005

HIGHLY CONFIDENTIAL

1 in light of the additional testimony you're 01:51:57
2 offering.

3 Is there any relationship between
4 column K and the automated removal process of the
5 capability from an app that started in 01:52:10
6 October 2018?

7 A. My understanding that that column
8 would -- if -- if that column contained a
9 "Boolean *true" or "1" would -- would mean that --
10 that also the capability wouldn't be removed from 01:52:28
11 the app, if it was not being used in a 90-day
12 period.

13 Q. And in that instance, if there was the
14 1 indicated in this column, would that mean there
15 is -- unlike column J where the exception provides 01:52:47
16 an ended date, a specific end date, if there is a
17 Boolean 1 in column K it would not provide a
18 specific end date, but would the capability app
19 pairing would continue perpetuity until that was
20 changed; is that accurate? 01:53:08

21 A. That's my understanding of the system.

22 Q. Do you have any other testimony you'd
23 like to clarify from yesterday?

24 A. Nope, that covers the -- the things I'd
25 like to catch up on. 01:53:21

Page 1006

HIGHLY CONFIDENTIAL

1 Q. So yesterday we talked about two of three 01:53:32
2 spreadsheets that were produced by Facebook that
3 reflect the capabilities tool, and I wanted to jump
4 into the third today.

5 (Exhibit 429 was marked for 01:53:47
6 identification by the court reporter and is
7 attached hereto.)

8 MR. MELAMED: So I've marked what -- I
9 have introduced what's been marked as Exhibit 429.
10 Exhibit 429 is Bates number FB-CA-MDL-0236297. 01:53:54

11 It has been identified to us as the
12 "Capability table."

13 I'll share my screen. I've adjusted --
14 I've only adjusted the columns. And, again, as
15 with the other spreadsheets we looked at yesterday, 01:54:26
16 this is merely an excerpt of the Capability table.

17 Are you -- is this something you have
18 reviewed before today?

19 MR. SCHWING: Mr. Melamed, it's not
20 showing up in the Exhibit Share. I'm not sure if 01:54:43
21 that -- we need to do something to get into the
22 Exhibit Share.

23 MR. MELAMED: I think there is a new day
24 of -- of -- for the Exhibit Share, and I think that
25 it says day 5. 01:54:57

HIGHLY CONFIDENTIAL

1 MR. SCHWING: Okay. I will figure that 01:55:03

2 out.

3 MR. MELAMED: Okay.

4 MR. SCHWING: Thank you.

5 Q. (By Mr. Melamed) Mr. Cross, are you able 01:55:05

6 to see it or at least able to see it on my screen

7 well enough to be able to testify about it?

8 A. I can see it yeah, and I -- I also have

9 it in Exhibit Share.

10 Q. Okay. 01:55:15

11 A. By the new date.

12 MR. MELAMED: Mr. Schwing, would you like

13 me to wait until you're able to pull it up.

14 MR. SCHWING: I was able to figure it

15 out. Thank you. 01:55:24

16 MR. MELAMED: Okay.

17 Q. (By Mr. Melamed) So I'd like to do the

18 same thing we've done with other -- the other

19 tables that comprise the capabilities tool and talk

20 through what each of these columns indicates. And, 01:55:35

21 again, I'm not interested specific -- in the

22 specific row other than it is indicative of the

23 values and the type of values that can be entered

24 and reflected in the table.

25 So column A is titled "ID." And so if we 01:55:49

Page 1008

HIGHLY CONFIDENTIAL

1 look at row 2 here, the ID is "353." 01:55:55

2 Do you know what that number ID number
3 references?

4 A. My understanding, that ID references
5 the -- the ID for a given capability as stored in 01:56:06
6 the capability tool.

7 Q. And is there a single ID associated with
8 each individual capability?

9 A. My understanding is that the ID is unique
10 for each capability. 01:56:26

11 Q. So capability, to look at row 353 and
12 skip ahead, do you see that column C is labeled
13 "capability_name"?

14 A. I do see that.

15 Q. And the name reflected in column C is 01:56:43
16 "auto_granted_friends_videos"?

17 A. I see that.

18 Q. So first, what is
19 auto_granted_friends_videos? And I -- to clarify,
20 I don't mean what specific access does that 01:57:01
21 provide.

22 But what type of information is that?

23 A. That would allow an apps -- an app to
24 access the videos posted by a user's friends.

25 Q. Okay. And the information in the 01:57:17

Page 1009

HIGHLY CONFIDENTIAL

1 capability name column is Facebook's internal -- 01:57:19

2 internal naming of the capability; is that right?

3 A. That's correct. That is the name that
4 the capability would be referred to in code.

5 Q. And is it universal that Facebook's 01:57:39

6 internal capability names have underscores where
7 two words are connected?

8 A. Capabilities typically use underscores
9 instead of spaces. But there may be some
10 capabilities where you will use a space in English 01:58:03
11 that the person that created the capability chose
12 not to do so.

13 Q. So going back to the information in
14 column A, these are -- in connection with the
15 information in column C, am I -- do I understand 01:58:25
16 this correctly to say that the capability with
17 ID 353 is auto_granted_friends_videos?

18 A. That's my understanding, yes.

19 Q. Going back to column B. It says "fbid."
20 And it is a longer numeric string in row 2. 01:58:47

21 What -- do you understand what the
22 information reflected in column B is?

23 A. My understanding is that that refers to
24 an ID that represents this capability in Facebook's
25 TAO database. 01:59:14

Page 1010

HIGHLY CONFIDENTIAL

1 Q. Do you understand the reason why there is 01:59:15
2 a separate ID as reflected in column A and
3 Facebook -- FBID as reflected in column B?

4 A. The capabilities tool uses a different
5 database than Facebook's primary data setting 01:59:35
6 infrastructure as it's relatively common at
7 Facebook that -- would be able to have a way of
8 mapping the ID for -- for something from one
9 database to another.

10 Q. What database does the capabilities tool 01:59:57
11 use?

12 A. My understanding is that the capability
13 tool uses the database, a "MySQL" database.

14 Q. Is the FBID that is reflected in column B
15 uniquely and permanently associated with a single 02:00:22
16 capability. In other words, let me -- let me
17 rephrase that. That was poor phrasing.

18 Is the entry in row 2 column B associated
19 with the -- with capability "ID 353" and capability
20 name "auto_granted_friends_videos"? 02:00:45

21 A. My understanding is that FBID would
22 uniquely represent that capability in Facebook's
23 TAO database.

24 Q. And every time that Facebook ID is used
25 in the Facebook's TAO database, it is referencing 02:01:08

HIGHLY CONFIDENTIAL

1 that specific capability; is that correct? 02:01:12

2 A. That's my understanding of what the FBID
3 represents in this context.

4 Q. Going onto column D, which is, header is
5 "cms_id_for_external_description." 02:01:27

6 Do you know the -- what type of
7 information is reflected in column D?

8 MR. SCHWING: Object to form.

9 THE DEPONENT: The information in
10 column D would represent an ID that represents a 02:01:49
11 document in Facebook's companywide CMS system.

12 Q. (By Mr. Melamed) "CMS" mean -- meaning
13 content management system?

14 A. My understanding is CMS in this context
15 is a content management system. 02:02:14

16 Q. What type of information would be in
17 Facebook's content management system that pertains
18 to a capability as reflected in a row in this
19 table?

20 A. My understanding is that for some 02:02:38
21 capabilities there is a need to have a description
22 of the capability which is available to third-party
23 developers. And if that is the case, then that
24 description would be stored in the CMS system and
25 the ID of the document containing that description 02:03:02

Page 1012

HIGHLY CONFIDENTIAL

1 would be referenced here. 02:03:07

2 Q. If there is an entry in column D for a
3 particular capability that references Facebook's
4 content management system -- and -- I'm sorry -- an
5 entry in Facebook's content management system, is 02:03:24
6 it accurate that -- let me withdraw that and
7 restate it.

8 Where there is a page within Facebook's
9 content management system associated with a
10 capability, as reflected in this table, does that 02:03:45
11 mean necessarily that the page -- within Facebook's
12 content management system was communicated to a
13 third party?

14 MR. SCHWING: Object to form.

15 THE DEPONENT: I -- I don't think it -- 02:04:02
16 that's necessarily the case, no.

17 Q. (By Mr. Melamed) So you -- your
18 testimony is that sometimes that was the purpose of
19 a page within the CMS system associated with the
20 capability; is that right? 02:04:17

21 MR. SCHWING: Object to form.

22 THE DEPONENT: My understanding is that
23 for some capabilities there may be a document in
24 the CMS system, and that document may contain
25 information about that capability. I can't say for 02:04:33

Page 1013

HIGHLY CONFIDENTIAL

1 certain whether or not that means the information 02:04:37
2 was made available to third-party developers.

3 Q. (By Mr. Melamed) Can you think of other
4 purposes that Facebook would have a document in its
5 CMS system associated with an individual 02:04:50
6 capability?

7 A. I'd be speculating as to -- as to why
8 Facebook might have a document in its CMS system.
9 I wasn't personally closely involved in the
10 addition of this information. 02:05:11

11 Q. If there was a document identified or
12 reflected in column D, would Facebook have the
13 ability to pull that document from its content
14 management system?

15 A. I can't confirm whether or not that would 02:05:39
16 be possible or not, and for -- for a number of
17 reasons, technical reasons as to how systems work.
18 I -- I wouldn't want to confirm that.

19 Q. Do you use Facebook's content management
20 system? 02:05:59

21 A. I don't on a daily basis use Facebook's
22 content management system.

23 Q. So if plaintiffs were to identify entries
24 in column D to Facebook and want to know whether
25 the documents reflected in those CMS IDs could be 02:06:20

Page 1014

HIGHLY CONFIDENTIAL

1 produced, who would you ask at Facebook to 02:06:29
2 determine whether they could be?

3 A. Who would I ask? I'd -- I would ask our
4 legal team first of all, if it -- if it's relying
5 on -- if you're asking questions about whether or 02:06:49
6 not something can be produced. I assume they would
7 be able to speak to the -- the engineers or data
8 scientists who would be able to advise on that
9 matter.

10 Q. If you were using a capabilities tool 02:07:09
11 internally and wanted to review the document
12 reflected in column D, how would you go about
13 reviewing that document? What steps would you
14 take?

15 MR. SCHWING: Object to form. 02:07:25

16 THE DEPONENT: If the CMS ID was visible
17 in the capability tool, my first attempt would be
18 to access the CMS and attempt to search for a
19 document by that ID.

20 Q. (By Mr. Melamed) We've gone back and 02:08:01
21 forth about this tool for a long time, and
22 sometimes I think both of us have referred to it in
23 the plural and sometimes in the singular, the
24 capabilities tool and the capability tool.

25 Is one of those correct? 02:08:12

A. My understanding is those terms are --

are used interchangeably.

```
3      Q.   Moving onto column E the header is
4      "eng_oncall_id."
```

| | | |
|---|----------------------|----------|
| 5 | What does that mean? | 02:08:35 |
|---|----------------------|----------|

6 A. So inside Facebook code is generally
7 marked as being owned by a team using a system
8 called "Oncall." And so Oncall represents a team
9 of engineers, and my understanding is that this
10 would be the ID representing the Oncall of the team 02:09:02
11 responsible for this capability.

12 Q. Do you know approximately how many teams
13 there are at Facebook that could be -- that were
14 responsible for all of the capabilities in the
15 capability used tool? 02:09:28

16 MR. SCHWING: Object to form.

17 THE DEPONENT: There's likely hundreds or
18 thousands, or probably thousands of -- of eng
19 oncalls at -- at Facebook. I -- I don't know how
20 many of them are represented in the capability 02:09:43
21 tool.

22 Q. (By Mr. Melamed) So this cell that I
23 currently highlighted, which is row 2 column E, and
24 it's a long numeric string that identifies an
25 engineering team at Facebook. 02:10:01

HIGHLY CONFIDENTIAL

1 A. My understanding is that identifies an 02:10:05
2 engineering Oncall rotation.

3 Q. What is an "engineering Oncall rotation"?

4 A. An engineering Oncall rotation represents
5 a group of engineers who are responsible for that 02:10:25
6 Oncall. And -- and one of them would be Oncall at
7 any given time.

8 Q. So that number represents a group of
9 people, one of whom is always available to -- to do
10 what? 02:10:49

11 A. Engineering Oncall -- Oncall rotations
12 perform a number of activities and you said that
13 someone is always available. I -- I can't confirm
14 whether or not for every Oncall there is always an
15 engineer available. 02:11:15

16 Q. It's similar to an oncall doctor that
17 there's somebody available from this team to
18 address any issues that arise with this capability?

19 MR. SCHWING: Object to form.

20 THE DEPONENT: My understanding of the 02:11:34
21 purpose of this is that this identifies a -- a
22 group of engineers who would be the first port of
23 call in understanding the -- if there was an issue
24 with the capability and how to resolve it.

25 Q. (By Mr. Melamed) Column F has the header 02:11:56

HIGHLY CONFIDENTIAL

1 "description," and in row 2 it's a longer narrative 02:12:01
2 entry.

3 Do you know what the description field
4 indicates in the Capability table?

5 A. My understanding is that this represents 02:12:20
6 a -- a description of the capability and what it is
7 designed to do, and in some cases information about
8 when it is expected to be used.

9 Q. Do you know who is responsible for
10 entering the description for a particular 02:12:38
11 capability?

12 A. Typically the engineer who creates the
13 capability is first responsible for entering a
14 description for the capability.

15 Q. Do you know if the identity of the 02:13:00
16 engineer who creates each capability in the
17 Capability table is reflected in the Capability
18 table?

19 A. My understanding is that the owner ID
20 column represents the -- the -- the Facebook ID of 02:13:17
21 the employee who created the capability.

22 Q. All right.

23 So skipping ahead here, a few columns
24 that the owner ID column is column J, correct?

25 A. That's correct. 02:13:33

Page 1018

HIGHLY CONFIDENTIAL

1 Q. So the person who created the capability 02:13:33
2 in row 2 is the person who -- with the Facebook
3 ID number 661792110; is that right?

4 A. That's my understanding. And that
5 references the ID of the person that created the 02:13:50
6 capability in the tool. It's possible that the
7 person that implements the capability in code may
8 be a different person.

9 Q. And is it your understanding, that the
10 person who entered the capability into the tool is 02:14:06
11 the person who provided the description in
12 column F?

13 A. It's likely that the person that created
14 the capability in the tool provided the first
15 version of the description. But the description 02:14:24
16 likely changed over time as people edited it in the
17 tool.

18 Q. Are those -- are the identity -- let me
19 withdraw that.

20 Is the identity of any individual who 02:14:40
21 edited the description, captured in the tool?

22 A. My understanding is that updating the
23 description is one of the entries captured in the
24 Log table.

25 Q. So to determine whether the description 02:15:01

HIGHLY CONFIDENTIAL

1 hadn't been updated when you would cross reference 02:15:04
2 the information in Exhibit 429 with the Log table,
3 which is one of the exhibits we looked at
4 yesterday; is that right?

5 A. My understanding is that the Log table 02:15:19
6 would indicate when a description, and if a
7 description had been updated for a specific
8 capability.

9 Q. Column G the header is
10 "endpoints_affected." 02:15:33

11 What information is reflected in that
12 column? What does endpoint -- let me withdraw that
13 and state it again.

14 What does endpoints_affected mean?

15 A. At a high level, an endpoint is 02:15:49
16 synonymous with a -- an API call or an API method.
17 And by "affected," I understand that to mean that
18 the -- the capability here modifies that API
19 endpoint in some way.

20 Q. And if you look at row 2 in column G 02:16:14
21 under "endpoints_affected," the entry is blank.

22 Do you know why -- what it means if an
23 entry is blank in row G -- I'm sorry, column G?

24 A. Could mean a number of things. I'm not
25 entirely sure how that column is -- is populated 02:16:41

HIGHLY CONFIDENTIAL

1 and how it would be filled. 02:16:45

2 Q. Who would you ask if you wanted to know
3 more about how column G endpoints affected is
4 populated and filled?

5 A. I would speak to Mr. Molaro in the first 02:17:08
6 instance.

7 Q. Column H has a header
8 "approval_criteria."

9 Do you know what that means?

10 A. My understanding is that that refers to 02:17:26
11 what would be a high-level description of the
12 criteria an app would have to meet to be -- have
13 the capability granted to it. Although my
14 understanding is that information is not
15 universally captured in this tool. 02:17:47

16 Q. When that information is captured in this
17 tool, do you know who is responsible for entering
18 it?

19 A. I'm not sure who's responsible for -- for
20 entering it. 02:18:05

21 Q. Do you know why this approval criteria
22 information is not always entered in the Capability
23 table?

24 A. Sorry, can you ask the question again.

25 Q. Sure. 02:18:30

Page 1021

HIGHLY CONFIDENTIAL

1 So you said -- my understanding is you 02:18:32
2 said that information about the approval criteria
3 is not always reflected in the capability tool; is
4 that right?

5 A. The fact that this entry is null suggests 02:18:43
6 that approval criteria for this capability is -- is
7 not captured here.

8 Q. Do you know why approval criteria is not
9 always captured in the capability tool?

10 A. I don't know why the approval criteria 02:19:00
11 is -- is always not -- is not always captured in
12 this tool, there's -- there's likely a bunch of
13 reasons why.

14 Q. Column I is "emits_user_data."

15 What does that mean? 02:19:21

16 A. My understanding is that that refers to
17 an assessment of whether or not the capability
18 emits user data as defined by covered information
19 as defined by the FTC order, that's my
20 understanding. 02:19:45

21 Q. Do you know which FTC order you're --
22 you're referencing?

23 A. I don't know which FTC order that refers
24 to.

25 Q. Do you know who makes the determination 02:19:56

HIGHLY CONFIDENTIAL

1 whether or not the capability emits user data as 02:19:59
2 defined by the FTC order?

3 A. My understanding is that's done by a
4 group of people that's part of the API XFN process.

5 Q. Do you know when the API XFN process 02:20:18
6 started?

7 A. My understanding is the API XFN process
8 began in February 2019.

9 Q. Do you know the members of -- let me
10 withdraw that and restate. 02:20:37

11 Do you know who is part of the API XFN
12 process at Facebook?

13 A. I don't know the names of the people
14 directly involved in the API XFN process.

15 Q. Do you know the names of any of the 02:20:48
16 people involved in the API XFN process?

17 A. As I sit here today I'm -- I'm not sure
18 of the names of the people involved in the API XFN
19 process.

20 Q. And I don't mean to keep making you go 02:21:01
21 back over the same question. I'm just going to ask
22 it slightly -- slightly differently.

23 Do you know anyone who has ever been
24 involved in the API XFN process?

25 A. I know that the API XFN process -- no, 02:21:21

HIGHLY CONFIDENTIAL

1 I'm -- I'm not aware as I sit here today of -- of 02:21:24
2 specific names of people who I can confirm were
3 involved in the API XFN process. It's likely that
4 people were involved in different ways. But I -- I
5 wouldn't want to give information I'm not confident 02:21:35
6 about.

7 Q. Do you know if there's a particular team
8 within the API XFN process who is responsible for
9 determining whether the capability emits user data
10 as that term is used in column I? 02:21:51

11 A. My understanding is that the, there --
12 there is a process as part of the API XFN, that
13 determines whether or not a capability emits user
14 data.

15 Q. Do you know anything about that process? 02:22:07

16 MR. SCHWING: Object to form.

17 THE DEPONENT: My understanding is that
18 that process will look at the API response that
19 would be admitted as a result of this capability
20 being applied and -- and assess whether or not that 02:22:29
21 information meets the criteria of emitting user
22 data.

23 Q. (By Mr. Melamed) Do you know if there's
24 any documentation of -- of the process evolves when
25 the API XFN team determines whether a given 02:22:47

HIGHLY CONFIDENTIAL

1 capability emits user data? 02:22:57

2 A. I imagine that some documentation exists
3 about the processes API XFN follows, but I do
4 not -- would not know the specifics, I'm afraid.

5 Q. If you wanted to know more about the 02:23:19
6 API XFN process as it pertains to column I in the
7 capability tool, who would you ask?

8 A. I would ask Mr. Molaro in the first
9 instance.

10 Q. Column J has the header "owner_id," and 02:23:37
11 we talked about that. That is the person who
12 entered the information into the capability tool,
13 correct?

14 A. No, not necessarily. My understanding is
15 the owner ID represents the person who created the 02:23:55
16 capability in the capability tool.

17 Q. Thanks for clarification.

18 Can you just describe what you mean by
19 "the person who creates the capability in the
20 capability tool"? 02:24:14

21 A. My understanding is that there's a way
22 for a Facebook employee to go to the capability
23 tool and -- and create a new capability in the
24 tool.

25 Q. And when a Facebook employee goes to the 02:24:32

HIGHLY CONFIDENTIAL

1 capability tool and creates a new capability tool 02:24:34
2 that individual's ID number is recorded in column J
3 for -- for the capability that that person enters
4 information about?

5 A. My understanding is that column J 02:24:47
6 represents the -- the user ID of the person that
7 first created the capability in the capabilities
8 tool.

9 Q. Okay. And column K is -- has the header
10 "is_deprecated." 02:25:01

11 Can you explain what that means?

12 A. My understanding is that "is deprecated"
13 refers to whether or not the capability has been
14 deprecated. If the capability has been deprecated,
15 then it's no longer checked in code and no app 02:25:21
16 would have access to it in any way.

17 Q. Just a couple follow-up questions on
18 that. First, what -- if you look at row 2,
19 column K, the entry is "false" in the "is
20 deprecated" column. 02:25:51

21 Do you know what "false" means in this
22 context?

23 A. "False" would mean that the capability
24 has not been deprecated in the capability tool.

25 Q. What does it mean for a capability to be 02:26:05

HIGHLY CONFIDENTIAL

1 deprecated in the capability tool? 02:26:09

2 A. My understanding is that if a capability
3 is deprecated in the capability tool, then no
4 checks -- that that capability will not have any
5 effect for any app on Facebook developer platform. 02:26:29

6 Q. Is the use of the term -- let me withdraw
7 that.

8 Does it mean something different here in
9 column K to note that a capability is deprecated
10 than it does, for instance, when Facebook 02:26:49
11 deprecated any set of APIs when it introduced
12 Graph 2.0?

13 MR. SCHWING: Object to form.

14 THE DEPONENT: This field refers
15 specifically to the -- the behavior of the 02:27:13
16 capability in the capability tool and how that
17 capability is applied to apps.

18 Q. (By Mr. Melamed) Let me try and restate
19 my question. I'm not trying to ask something
20 tricky. 02:27:30

21 In other contexts, I think we've
22 discussed Facebook has deprecated APIs and does not
23 mean that apps are immediate -- that that API no
24 longer has any function for an app.

25 Do you understand what I'm saying? And I 02:27:55

Page 1027

HIGHLY CONFIDENTIAL

1 don't know that I'm making -- I'm stating this very 02:27:57
2 clearly. But do you have a general
3 understanding -- an understanding of what I'm
4 getting at?

5 MR. SCHWING: Object to form. 02:28:05

6 THE DEPONENT: In this context and in
7 this tool "is deprecated" refers to whether or not
8 any app, that this capability has any affect for
9 any app in the API at -- at the time this data was
10 generated. 02:28:28

11 So "is deprecated" in this context means
12 something very specific and concrete.

13 Q. (By Mr. Melamed) And is the meaning of
14 "is deprecated" in this tool different than the
15 meaning of deprecation when Facebook announces that 02:28:41
16 it is going to -- that an API has been deprecated?

17 MR. SCHWING: Object to form.

18 THE DEPONENT: First, deprecated is used
19 in -- in a number of different ways in a number of
20 different contexts. In this context it -- it means 02:29:01
21 something very specific. Which means that if a
22 capability is marked as deprecated in the
23 capability tool then this capability has no effect
24 for any app.

25 Q. (By Mr. Melamed) In -- and just to be 02:29:15

HIGHLY CONFIDENTIAL

1 more concrete. 02:29:17

2 Are you aware that in 2014 Facebook
3 announced it would deprecate friends permissions
4 APIs?

5 A. I'm aware that Facebook said it was going 02:29:33
6 to make friend permissions unavailable to most of
7 third-party developers.

8 Q. Okay. Did you hear the word -- did you
9 understand that Facebook used the term
10 "deprecation" when it -- or deprecate when it made 02:29:48
11 that announcement?

12 MR. SCHWING: Object to form.

13 THE DEPONENT: I'm aware of the term
14 "deprecated" being used in -- in that context.

15 Q. (By Mr. Melamed) Okay. And that the 02:29:59
16 announcement was that friends permissions would be
17 deprecated for apps then using Graph 1.0 by
18 April 30th, 2015.

19 Do you understand that?

20 MR. SCHWING: Object to form. 02:30:22

21 THE DEPONENT: There's a number of
22 different ways that the changes that were announced
23 were -- were explained to developers. And, again,
24 deprecated -- the word "deprecated" can be used
25 in -- can mean different things in different 02:30:36

Page 1029

HIGHLY CONFIDENTIAL

1 contexts. Again, in this context it means 02:30:39
2 something very specific.

3 Q. (By Mr. Melamed) So in the context of
4 this tool, if "is deprecated" -- let me withdraw
5 that and ask a different question. 02:30:51

6 Row 2 says -- it indicates false for "is
7 deprecated."

8 Do you know what would be entered if any
9 capability had, in fact, been deprecated in this
10 tool? 02:31:05

11 A. My understanding is that if the
12 capability is considered deprecated in the
13 capability tool, then the "is deprecated" column
14 would return true.

15 Q. If the "is deprecated" column indicated 02:31:18
16 true, is it accurate to say that that capability
17 would no longer function for any app in any way?

18 A. Yes, that's -- that's my understanding.
19 And as I -- I think I represented earlier, my
20 understanding is that in this context the 02:31:40
21 capability tool if -- a capability is marked as
22 deprecated in the capability tool, then the
23 capability has no effect -- no effect to any app.

24 Q. Do you know whether there are any entries
25 that are possible for column K other than false and 02:31:56

Page 1030

HIGHLY CONFIDENTIAL

1 true? 02:32:00

2 A. My understanding is that that column is
3 a -- is a Boolean value.

4 Q. A "Boolean value" meaning either false or
5 true? 02:32:11

6 A. My understanding is that it's false or
7 true. It's -- it's possible that there were no
8 values there too. But my understanding is it's
9 probably false or true.

10 Q. You do not know as you sit here today 02:32:26
11 whether there are any null values for column K in
12 the capability tool; is that right?

13 A. I didn't -- in preparation for today's
14 testimony, I didn't review every row of that -- of
15 that table of that column. And my understanding is 02:32:40
16 that it -- it would most -- most likely be true or
17 false. But I can't confirm that there were no null
18 entries, it's possible.

19 Q. Can you think of a scenario -- let me
20 withdraw that. 02:33:03

21 Can you think of a reason there may be a
22 null entry in this column, or is this just
23 something where you're trying to create the
24 possibility of -- just explain the possibility that
25 you don't know everything about this tool? 02:33:14

Page 1031

HIGHLY CONFIDENTIAL

1 MR. SCHWING: Object to form. 02:33:17

2 THE DEPONENT: I -- I -- I reviewed as
3 much as I can in preparation for this, and my
4 understanding is that -- is deprecated is a Boolean
5 value. As I say most rows would have a Boolean 02:33:32
6 value. Just -- referring to the fact that -- that
7 I haven't reviewed every single row and therefore,
8 again, it's possible. My -- my understanding is
9 it's -- it's likely that that column is a true or a
10 false. 02:33:51

11 Q. (By Mr. Melamed) Thanks for the
12 clarification.

13 I'm going to scroll over a few columns so
14 we can see more of the context. So column L is
15 "admin_group." 02:34:03

16 What does that mean?

17 A. Admin group refers to a -- a list of
18 admins or a list of Facebook employees that had the
19 ability to modify the capability of which apps it
20 was granted to. 02:34:31

21 Q. So --

22 A. I'm sorry. Go.

23 Q. No. Please, please, I didn't mean to cut
24 you off.

25 A. Well, that's what admin group means. 02:34:49

Page 1032

HIGHLY CONFIDENTIAL

1 Q. So column L indicates who could provide 02:34:59
2 permission for an app to access the capability in
3 that row?

4 A. So it's a little bit complicated here.
5 The -- my understanding is the admin group refers 02:35:19
6 to an admin group in the capabilities tool. But
7 with the advent of the API XFN process, my
8 understanding is the third-party grants have to be
9 approved by the API XFN process. And if this is
10 valid, a tool it's only relevant to first-party 02:35:43
11 apps. And, you know, one of the things we're going
12 to get to as we work through this table is that,
13 these columns -- some of these columns refer to how
14 the capability tool operated in -- in the past.

15 Which is different to how it operates 02:36:03
16 today after the advent of the API XFN process.

17 Q. Is the information in column L -- let me
18 withdraw that.

19 If there is an entry in column L, does it
20 pertain only to first-party apps? 02:36:16

21 A. My understanding is today the admin group
22 functionality only applies to first-party apps.

23 Q. Was there a time in the past when the
24 admin group functionality applied beyond
25 first-party apps? 02:36:40

HIGHLY CONFIDENTIAL

1 A. My understanding is that in the -- in the 02:36:47
2 past, sometime before the advent of the API XFN
3 process, that the -- the admin group was --
4 represented the group of people responsible for
5 approving API capability grants to applications. 02:37:03

6 Q. Do you know when -- what -- let me
7 withdraw that.

8 At what point in time could the admin
9 group entries pertain to apps beyond first-party
10 apps? 02:37:37

11 A. I know that -- that was the case in --
12 from the gestation of the capabilities tool, but
13 I -- I don't know when the approval system changed.

14 Q. Do you know if the Capability table that
15 we're looking at presently indicates when a 02:38:06
16 capability first became available?

17 A. Can you help me understand what you mean
18 by "first became available."

19 Q. Yes.

20 When -- do you know whether the 02:38:21
21 Capability table indicates for each capa- -- for
22 each row, when that capability could first be used
23 by an app?

24 A. No, I don't believe that information
25 is -- is contained in this -- in this table for 02:38:37

HIGHLY CONFIDENTIAL

1 capability to be first used by an app. It would 02:38:40
2 need to be created, which I understand is captured
3 by this table, but there would be other things that
4 would determine whether or not an app could use the
5 capability, for example, whether or not the code 02:39:00
6 gating that capability was on the production
7 servers.

8 Q. Do you know whether that information is
9 captured in the capabilities tool, if not in this
10 table somewhere else in the capabilities tool? 02:39:17

11 A. My understanding is that -- I'm not aware
12 of that being -- of that level of detail being
13 captured in the -- in the capability tool.

14 Q. Do you know if that level of detail is
15 captured elsewhere at Facebook? 02:39:31

16 A. I'm -- I'm not an expert in Facebook's
17 engineering -- engineering systems. And so I'm --
18 I'm not able to give an -- an answer as to exactly
19 how that would be achieved.

20 Q. If you wanted to find that level of 02:39:51
21 detail out, who would you ask?

22 MR. SCHWING: Object to form.

23 THE DEPONENT: I would speak to an
24 engineer on the -- on the platform team.

25 Q. (By Mr. Melamed) Is there anybody you 02:40:06

HIGHLY CONFIDENTIAL

1 would presently go to who is an engineer on the 02:40:09
2 platform team if you wanted to find that
3 information out?

4 A. I would go to Mr. -- Mr. Elia in the
5 first instance. 02:40:23

6 Q. Column M has the header
7 "approval_required."

8 What does that mean?

9 A. My understanding is that -- that means
10 whether or not somebody, either one of the people 02:40:40
11 in the admin group or some other process is
12 required before the capability can be granted to an
13 application.

14 Q. And what does the entry "true" as
15 reflected in row 2 column M indicate? 02:41:04

16 A. My understanding is that that would mean
17 that if somebody requested to add a capability to
18 an app, it would need to be approved by some --
19 some other entity.

20 Q. And what other values -- are you aware of 02:41:26
21 the other values that could be entered in column M?

22 A. My understanding is that that's either a
23 true or false.

24 Q. And so if false was entered, it would
25 mean that that capability did not require anyone in 02:41:43

HIGHLY CONFIDENTIAL

1 admin group or another process before the 02:41:48
2 capability can be granted to an application; is
3 that right?

4 A. I'm not entirely sure of the specific
5 behavior that the tool would have exhibited in the 02:42:08
6 case that that field is false.

7 Q. So let me ask that a slightly different
8 way.

9 If false is indicated in column M, do you
10 know what that means? 02:42:25

11 A. I'm not entirely confident in -- in
12 exactly what would remain if there was a false in
13 column M.

14 Q. Do you have any understanding of what it
15 would mean if there was a false in column M? 02:42:37

16 A. Not -- not beyond interpretation and
17 speculation. I -- yeah, I'm not entirely sure of
18 the precise behavior of the tool and -- and the
19 systems in the case that that is false.

20 Q. Column N, notes 02:42:56
21 "internal_approval_required."

22 And what does that mean?

23 A. My understanding is that that refers to
24 whether or not first-party apps require approval to
25 be added to the capability. 02:43:14

Page 1037

HIGHLY CONFIDENTIAL

1 Q. The column N contains solely to apps 02:43:18
2 created or administered by Facebook?

3 A. My understanding is that that refers to
4 apps which are considered first-party apps as per
5 Facebook's definition. 02:43:36

6 Q. What is Facebook's definition of a
7 "first-party app"?

8 A. At a high level it's an app that is
9 built, controlled and maintained by -- by Facebook.
10 That's my high-level understanding. It's -- it's 02:43:51
11 likely that there is a more precise definition, but
12 I -- I can't relay that detail to you today.

13 At a high level it's apps which are built
14 and not created by Facebook, is my understanding.

15 Q. Column O has the header 02:44:14
16 "first_party_only."

17 What does that mean?

18 A. My understanding is that this refers to
19 whether or not a capability is only grantable to
20 apps considered first party. 02:44:34

21 Q. And "true" in row 2 indicates that the
22 capability in row 2 is only grantable to
23 first-party apps; is that correct?

24 A. My understanding is that's -- that's what
25 this -- this column means. Although, it's possible 02:44:57

Page 1038

HIGHLY CONFIDENTIAL

1 to speculate. 02:46:48

2 Q. What's your understanding of what
3 second-party apps means?

4 MR. SCHWING: Object to form.

5 THE DEPONENT: Again, like I'm -- I'm 02:47:02

6 not -- not confident in this understanding that
7 that's important. But my high-level understanding
8 is it refers to apps which are not third-party
9 apps, and are not apps wholly owned and operated
10 by -- by Facebook. 02:47:20

11 Q. (By Mr. Melamed) Can you give an example
12 of an app that is neither a third-party app nor
13 wholly owned and operated by Facebook?

14 A. Again, as I want to caveat my -- my
15 testimony here, one example I think of as a 02:47:37
16 second -- is a second-party app is CrowdTangle.

17 Q. Why is it that you understand CrowdTangle
18 to be a second-party app?

19 A. I -- I don't understand the details of
20 how apps are considered second party and what goes 02:48:02
21 into that determination, so I don't think it would
22 be appropriate for me to speculate beyond whatever
23 we said.

24 Q. Look in -- let me withdraw that and
25 restate it. 02:48:18

Page 1040

HIGHLY CONFIDENTIAL

1 Who should we ask to determine whether -- 02:48:21
2 what is meant by "second-party app"?

3 MR. SCHWING: Object to form.

4 Q. (By Mr. Melamed) Let me restate that.

5 Who would you ask if you wanted a 02:48:34
6 definition of what constitutes a second-party app?

7 A. The -- I would speak to Mr. Molaro in the
8 first instance.

9 Q. And your understanding of column P is
10 that there are three possible entries; is that 02:49:00
11 accurate?

12 A. My understanding is that there were
13 three -- three possible entries. It's -- so it's
14 my previous testimony it's possible that there are
15 null values here as a -- as a fourth type, but 02:49:17
16 broadly, first, second and third is -- is my
17 understanding of what this means.

18 Q. You -- you talked about first and second
19 already. For third is it your understanding that
20 that would mean that third-party apps and 02:49:28
21 second-party apps and first-party apps could access
22 this capability?

23 A. My understanding is that if this column
24 contained value third then the capability could
25 theoretically be granted -- grantable to third-, 02:49:47

Page 1041

HIGHLY CONFIDENTIAL

1 second-, and the first-party apps. 02:49:51

2 It's important to know that this tool is

3 not just used to managing third-party developers.

4 A lot of Facebook's internal apps and apps that

5 Facebook builds and makes available are also 02:50:06

6 managed by this tool.

7 Q. Are all apps on Facebook either first- or

8 second- or third-party apps?

9 A. My understanding is that the -- the

10 definition of -- of first, second and third party 02:50:37

11 would allow any app to be categorized as first,

12 second or third party.

13 Q. For example, there is no fourth -- no

14 such thing as a fourth-party app on Facebook.

15 A. I'm not aware of -- of the concept of a 02:50:51

16 fourth-party app.

17 Q. Column Q, it says "api_xfn_approved."

18 What does that mean?

19 A. My understanding that -- is that that

20 means whether or not the -- the capability has been 02:51:10

21 reviewed and approved by API XFN. Although, it's

22 also my understanding that a false value there

23 doesn't mean it hasn't necessarily been reviewed by

24 them.

25 Q. What is your understanding of what a 02:51:30

Page 1042

HIGHLY CONFIDENTIAL

1 false value in column Q indicates? 02:51:34

2 A. I'm not sure precisely what -- what false
3 means in this context.

4 Q. What other values could be entered in --
5 in column Q? 02:51:48

6 A. So my understanding it's -- it's a
7 Boolean field, so true or false.

8 Q. And true would mean that it had been
9 approved by API XFN?

10 A. My understanding is that this 02:52:06
11 capability -- that would mean that the capability
12 had gone through API XFN.

13 Q. And when you said that your
14 "understanding of true means that the capability
15 had gone through API XFN," does that mean that 02:52:23
16 API XFN had approved the capability?

17 A. My understanding is that that means that
18 API XFN had -- had reviewed the capability in some
19 way.

20 Q. If API XFN had reviewed a capability and 02:52:50
21 determined that it should not be used, would true
22 appear in column Q?

23 A. I'm not sure exactly how the decisions
24 that API XFN take are -- are captured in this
25 specific table. 02:53:17

Page 1043

HIGHLY CONFIDENTIAL

1 Q. Are the decisions that API XFN makes 02:53:27
2 pertaining to capabilities logged elsewhere at
3 Facebook?

4 MR. SCHWING: Object to form. Outside
5 the scope. 02:53:43

6 THE DEPONENT: My understanding is that
7 the API XFN process uses the Launch Manager tool to
8 track its decision-making.

9 Q. (By Mr. Melamed) Have you ever heard of
10 the Launch Manager tool referred to as the lama 02:54:03
11 (phonetic)?

12 A. My understanding is that tickets within
13 the cap- -- the Launch Manager tool are often
14 referred to as "lamas."

15 Q. What do you mean by "tickets within the 02:54:29
16 Launch Manager tool"?

17 A. So the Launch Manager tool manages
18 Facebook's companywide privacy processes, and is
19 also used by API XFN. And a lama represents a
20 specific decision that is being evaluated by those 02:54:58
21 processes.

22 Q. Column R it has the header "created_ts,"
23 and what does that mean?

24 A. My understanding is that that's the --
25 the time that the capability was created in the 02:55:24

Page 1044

HIGHLY CONFIDENTIAL

1 capability tool. 02:55:28

2 Q. So for the capability in row 2, it was
3 created in the capability tool on August 15th, 2013
4 at 11:52 and 25 seconds a.m.; is that right?

5 A. That's my understanding of what the -- of 02:55:44
6 what that column means.

7 Q. Column S is -- has the header
8 "privacy_review state."

9 What does that mean?

10 A. This refers to a privacy review process 02:56:01
11 that existed before API XFN was introduced, and
12 this will refer to some kind of state within that
13 process.

14 Q. Do you know what is meant by the entry 2
15 in row 2 for privacy review state? 02:56:35

16 A. I do not know what's meant by -- by the
17 entry No. 2.

18 Q. Do you know what other types of entries
19 are reflected in column S for capabilities that
20 were created in the capability tool before API XFN? 02:56:55

21 A. I'm not aware of the specific privacy
22 review states that -- that existed.

23 Q. Do you know who was involved in the
24 review noted in -- in column S before API XFN?

25 A. I do not know who was involved in the 02:57:32

Page 1045

HIGHLY CONFIDENTIAL

1 privacy review process that existed prior to -- to 02:57:36

2 API XFN.

3 Q. Who would you ask to determine who was
4 involved in that process prior to API XFN?

5 A. I would attempt to contact someone called 02:57:53
6 Shirine, if she is indeed still at the company.

7 Q. Is Shirine's last name Sajjadi?

8 A. Yes, I'm referring to Shirine Sajjadi.

9 THE DEPONENT: Mr. Melamed, would now be
10 a good time to take a break? We've been going for 02:58:21
11 an hour and a half. I could -- I could do with a
12 break, a quick break.

13 MR. MELAMED: Let's go off the record.

14 THE VIDEOGRAPHER: Okay. We're off the
15 record. It's 2:58 p.m. 02:58:30

16 (Recess taken.)

17 THE VIDEOGRAPHER: We're back on the
18 record. It's 3:33 p.m.

19 Q. (By Mr. Melamed) When we took a -- right
20 before we took a break we were talking about 03:33:22
21 column S in Exhibit 429, the privacy_reviews_state
22 column, correct?

23 A. I think that's what we were talking --
24 talking to before the break, yes.

25 Q. And just to confirm, do you have any 03:33:36

Page 1046

HIGHLY CONFIDENTIAL

1 understanding of any of the values that could be 03:33:38
2 entered in column S?

3 A. I know that the -- the entries are
4 numeric values, and -- yeah, I know these are
5 numeric values, but I'm not confident in precisely 03:33:59
6 what they -- what they mean.

7 Q. Do you have any understanding of what the
8 numeric values mean?

9 A. I understand that there are -- they refer
10 to some state in a privacy review process that 03:34:16
11 existed prior to API XFN.

12 Q. Do you have any understanding --
13 understanding beyond that of what the numeric
14 values in column S indicate?

15 A. That's my -- my understanding of what 03:34:34
16 they -- what they refer to.

17 Q. Do you know how many numeric values are
18 available in the privacy review state, column?

19 A. Not off the top of my head, I'm afraid.
20 I can access that with a full document, but not off 03:34:49
21 the top of my head.

22 Q. Just to be clear, do you have any meaning
23 of what the numeric value 2 indicates in row 2,
24 column S?

25 A. I can't be sure what -- what a value of 2 03:35:13

HIGHLY CONFIDENTIAL

1 in column S indicates. 03:35:15

2 Q. And just to be clear, I'm not asking for
3 sure; I'm just asking do you have any understanding
4 of what 2 indicates in that -- in that field?

5 A. No, I'm not confident in what 2 indicates 03:35:27
6 in that field.

7 Q. Go to column T. And the header in
8 column T is "privacy_reviewed_by."

9 What does that mean?

10 A. My understanding is that refers to the 03:35:48
11 Facebook user ID of -- of the person who reviewed
12 this capability as part of a privacy review program
13 that existed prior to API XFN.

14 Q. And so the numeric value in column T is
15 the Facebook ID of that individual who conducted 03:36:09
16 the privacy review?

17 A. That's my understanding, yes.

18 Q. Column U has the header
19 "privacy_reviewed_on."

20 What does that mean? 03:36:27

21 A. My understanding is that refers to the --
22 to the UNIX time when the outcome of the prior to
23 API XFN privacy review process was conducted.

24 Q. Did you say "UNIX time," U-N-I-X?

25 A. Correct. UNIX time. 03:36:48

Page 1048

HIGHLY CONFIDENTIAL

1 Q. Can you describe what UNIX time is? 03:36:51

2 A. UNIX time is the number of seconds since
3 the UNIX Epoch, which is considered to be the first
4 of January 1970.

5 Q. So the value in row 2, column U reflects 03:37:07
6 the number of seconds since January -- indicates
7 the -- let me try and do this right.

8 The value entered in the cell in row 2,
9 column U is the number of seconds that had elapsed
10 since January 1, 1970. And that -- so that -- and 03:37:33
11 that is the time at which the privacy review was
12 conducted; is that right?

13 A. That's my understanding, yes. It's a
14 date time in what's commonly known as -- as UNIX
15 time format. 03:37:56

16 Q. Column V header is
17 "sent_for_privacy_review_on."

18 What does that mean?

19 A. My understanding is that -- again, this
20 is a UNIX time. UNIX time stamp, and refers to 03:38:16
21 when this capability was submitted into a privacy
22 review program that existed prior to API XFN.

23 Q. And so the -- the temporal flow of those
24 two columns is the first, the capability would be
25 sent for privacy review as reflected in column V, 03:38:42

Page 1049

HIGHLY CONFIDENTIAL

1 and then the review would be conducted as reflected 03:38:46
2 in column U; is that correct?

3 A. That's my understanding of how the
4 process works at a high level.

5 Q. Column W has "privacy_review_reason." 03:39:03
6 Do you understand what that means?

7 A. My understanding is, at a high level,
8 that refers to the -- the reason why this
9 capability was sent for privacy review.

10 Q. Do you know who was responsible for 03:39:34
11 entering the content in column W for a given
12 capability?

13 A. There were likely a number of people
14 involved in -- in this privacy review program that
15 existed prior to -- to API XFN, the information 03:39:56
16 could have been entered by a number of people.

17 Q. Do you know any of the people who could
18 have entered this in -- or who are within those --
19 that set of people you identified as could -- could
20 have possibly have been involved? 03:40:11

21 A. So this -- this is a -- my understanding
22 is that this refers to a privacy review processed
23 that existed prior to API XFN. I'm not -- you
24 know, I'm not confident in the names of the people
25 who would have been involved back in -- when this 03:40:43

Page 1050

HIGHLY CONFIDENTIAL

1 process was operating in 2017, '18. 03:40:47

2 Q. Do you see the value entered in column W,
3 the privacy review reason for row 2 is an ellipsis?

4 A. I see it's on the screen.

5 Q. Do you know what that means? 03:41:09

6 A. An ellipsis could have a number of
7 meanings in different context.

8 Q. In this context do you know what it
9 means?

10 A. Yeah, I can't be confident exactly what's 03:41:34
11 meant by an ellipsis in this -- in this context. I
12 think it only exists in a small number of rows.

13 Q. Do you know what other values could
14 possibly be under privacy review reason?

15 A. My understanding this is -- this is some 03:42:01
16 kind of the text field.

17 Q. So it's a free-form entry field?

18 A. I wouldn't say it's completely free form,
19 but my understanding is that this -- this field
20 contains text in some cases. 03:42:15

21 Q. Column X says "require_contract."
22 What does that mean?

23 A. My understanding is that that refers to a
24 determination by Facebook's legal team as to
25 whether or not any app developer who has access to 03:42:42

Page 1051

HIGHLY CONFIDENTIAL

1 this capability needs to sign some form of 03:42:46

2 additional agreement in order to be granted access.

3 Q. And what does "false," as indicated in

4 row 2, under "require contract," indicate?

5 A. My understanding is that that means that 03:43:12

6 either the legal team have not determined -- it

7 means that the legal team have not determined that

8 it requires a contract.

9 Q. And what would -- let me withdraw that.

10 Would "true" mean that the legal team had 03:43:27

11 determined that access to the capability did

12 require a contract?

13 A. My understanding that true in that column

14 represents that the legal team has determined at

15 the point that this data was pulled that the 03:43:47

16 capability required -- that for an app to have

17 access to a capability, that the developer had to

18 sign some form of additional agreement.

19 Q. Did Facebook -- well, let me withdraw

20 that. 03:44:12

21 Did Facebook track which developers had

22 entered contracts for which capabilities?

23 MR. SCHWING: Object to form.

24 THE DEPONENT: Can you help me understand

25 what -- what time period you're referring to here? 03:44:44

Page 1052

HIGHLY CONFIDENTIAL

1 Q. (By Mr. Melamed) Sure. 03:44:48

2 From 2007 through present, did Facebook
3 track which developers entered contracts for access
4 to capabilities?

5 MR. SCHWING: Object to form. 03:45:13

6 THE DEPONENT: So Facebook does track
7 where capability requires a contract, does track
8 whether or not a developer has signed the
9 appropriate or agreed to the appropriate contract.
10 I'm not sure it's a precise legal term. Required 03:45:37
11 for them to gain access to a given capability
12 today.

13 Q. (By Mr. Melamed) So Facebook tracks
14 whether a capability requires a contract in the
15 document we're looking at, correct, Exhibit 429, 03:45:53
16 which is the Capability table?

17 A. This -- the Capability table today
18 includes a determination of whether or not a
19 capability requires the developer to sign a
20 contract to have -- an additional agreement to have 03:46:12
21 access to it. That's tracked in this tool today.

22 Q. Was it tracked somewhere else before
23 it -- let me withdraw that.

24 When you say "the capability table tracks
25 whether a given capability required a separate -- 03:46:35

Page 1053

HIGHLY CONFIDENTIAL

1 the developer to enter a separate contract in order 03:46:38
2 to use that capability," are all instances where
3 contracts were historically required reflected in
4 this table for each capability in this table?

5 MR. SCHWING: Object to form. 03:47:01

6 THE DEPONENT: My understanding is that
7 this -- this table represents Facebook's
8 understanding today of whether or not capability
9 requires a contract, and a process has been
10 conducted to ensure that contracts exist for the 03:47:22
11 capabilities that require it and the developers
12 that have access to it.

13 Q. (By Mr. Melamed) Prior to -- withdraw
14 that.

15 Was there a period of time for which the 03:47:48
16 Capability table did not track whether access to a
17 capability by an app required entering into a
18 contract?

19 MR. SCHWING: Object to form.

20 THE DEPONENT: The capability tool has -- 03:48:10
21 has changed and improved over time, and the data
22 fields it -- it captures today were not there --
23 were not all there when the tool was first
24 developed in -- in around 2013.

25 Q. (By Mr. Melamed) When was this field 03:48:32

HIGHLY CONFIDENTIAL

1 added to the capabilities tool? 03:48:33

2 A. This field was likely added -- I -- I

3 can't be sure of the precise date on which the

4 capability tool was added. I'm sorry, this field

5 was added to the capability tool. Yeah, I can't be 03:48:53

6 sure of the exact date when this field was added.

7 There was -- as I -- as I say, the tool has evolved

8 over time, and different fields have been added at

9 different times.

10 Q. When this field was added, was 03:49:08

11 information about whether capabilities that were

12 already in the tool before it was added, updated

13 for this field? Let me restate this.

14 So we're talking -- we've been using

15 row 2 as an example. And we saw earlier, I think 03:49:33

16 the capability in row 2 was created in this tool in

17 August of 2013.

18 Does that sound correct?

19 A. Sorry, say that again. The --

20 Q. In row 2 -- 03:49:48

21 A. Uh-huh.

22 Q. -- of Exhibit 429, the capability -- it

23 indicated the capability was added in 2013; is that

24 your recollection?

25 A. Can we look at that data. 03:50:12

Page 1055

HIGHLY CONFIDENTIAL

1 Q. We'll go back. There we go. So it was 03:50:13
2 created in the capability tool August 15th, 2015,
3 correct?

4 A. That's my understanding, yes.

5 Q. Okay. And do you know if that's before 03:50:28
6 column X was added to the capability tool?

7 A. My understanding is that the -- that
8 column X was added or the data -- the column -- the
9 field represented by column X was added after 2013.

10 Q. So in order to generate an entry, for 03:50:51
11 column X for the capability in row 2 -- let me --
12 let me withdraw that.

13 You see that column X has an entry for
14 the capability in row 2, correct?

15 A. I see column X in row 2 has -- has an 03:51:15
16 entry.

17 Q. Do you know whether -- for each
18 capability that existed in the capability tool
19 before column X was added, there is an entry in the
20 field for column X? 03:51:33

21 MR. SCHWING: The document speaks for
22 itself.

23 THE DEPONENT: Sorry, I'm not sure -- I'm
24 not sure I fully understand the question. Can
25 you -- can you ask it again? 03:51:52

Page 1056

HIGHLY CONFIDENTIAL

1 Q. (By Mr. Melamed) I'm just trying to 03:51:55
2 understand, and I'll state this more plainly.
3 The -- is information on cap- -- capabilities as
4 reflected in the Capability table concerning
5 whether they required a contract documented for 03:52:11
6 each capability, reflected in the Capabilities
7 table?

8 A. My understanding is that column X
9 reflects Facebook's understanding of whether or not
10 the capability requires a contract to be granted to 03:52:34
11 a third party at the time that -- that the table
12 you're looking at here was -- was generated.

13 Q. So column X is a snapshot in time of
14 when -- reflecting the information as of the date
15 and time that this table was pulled from the 03:52:54
16 capabilities tool?

17 A. Yes, this -- it's in Excel spreadsheet,
18 so it's a static representation of the -- of the
19 data and the tool at the time it was generated.

20 Q. Did Facebook track whether capabilities 03:53:14
21 required a contract in any other internal tool?

22 MR. SCHWING: Object to form.

23 THE DEPONENT: Again, in what time
24 period? Like before this field was added?

25 Afterwards? 03:53:43

HIGHLY CONFIDENTIAL

1 Q. (By Mr. Melamed) Let's start with before 03:53:45
2 this field was added.

3 A. I'm not aware of -- of a -- of a Boolean
4 field being tracked in -- in another tool relating
5 to whether or not a specific capability required 03:54:03
6 the contract.

7 Q. Are you aware of any other field being
8 tracked in another tool regarding -- let me
9 withdraw that.

10 Are you aware of any information 03:54:17
11 regarding whether a contract was required for an
12 app to access the capability that existed before
13 this field was added to the capabilities tool?

14 MR. SCHWING: Object to form.

15 THE DEPONENT: My recollection is that on 03:54:41
16 some occasions the description of the capability
17 would identify whether or not additional agreements
18 were needed.

19 Q. (By Mr. Melamed) The description of the
20 capability in what -- in -- let me restate that. 03:54:54
21 The description of the capability where?

22 A. The description of the -- in my answer
23 there, I'm referring to the description of the
24 capability in the capability tool.

25 Q. Is it your understanding that the 03:55:17

Page 1058

HIGHLY CONFIDENTIAL

1 description of the capability in the capability 03:55:18
2 tool, always indicated whether a contract was
3 required to access that capability prior to the
4 addition of column X in the capabilities tool?

5 MR. SCHWING: Object to form. 03:55:34

6 THE DEPONENT: I can't say for certain
7 that if the capability required a contract before
8 that column was added that that would always be
9 captured in the description of the capability in
10 the capability tool. 03:55:52

11 Q. (By Mr. Melamed) Did Facebook track all
12 of the capabilities that an app had entered a
13 contract in order to access by app?

14 MR. SCHWING: Object to form.

15 THE DEPONENT: Facebook's legal team were 03:56:18
16 the custodians of the contracts that were signed
17 with -- with third-party developers.

18 Q. (By Mr. Melamed) Was there a tool to
19 track the capabilities of each third-party
20 developer had entered contracts in order to access? 03:56:39

21 A. I don't recall or know of a specific tool
22 that was used to track specifically contracts and
23 the capabilities that were granted under them.

24 Q. So for instance, if I wanted to determine
25 what con- -- what capabilities Netflix had entered 03:57:12

HIGHLY CONFIDENTIAL

1 contracts to access. 03:57:19

2 Was there an internal tool available at
3 Facebook that would allow me to look up Netflix and
4 that would identify each of the capabilities

5 Netflix would access because of the longevity 03:57:38
6 contract?

7 A. A tool that performs that function --

8 MR. SCHWING: Simon?

9 THE DEPONENT: Sorry.

10 MR. SCHWING: Just -- sorry, let me state 03:57:46
11 my objection.

12 Object to form.

13 Go ahead.

14 THE DEPONENT: My understanding is that a
15 tool that would perform that function exists today. 03:57:52

16 Q. (By Mr. Melamed) And what is that tool?

17 A. My understanding is that tool is known as
18 a contract tool.

19 Q. When was that tool created at Facebook?

20 Let me restate that. 03:58:12

21 When did Facebook first start using that
22 tool?

23 MR. SCHWING: Outside the scope. Object
24 to form.

25 THE DEPONENT: My understanding is a 03:58:25

Page 1060

HIGHLY CONFIDENTIAL

1 contracts tool is a -- a standard tool used by 03:58:26
2 many -- there are several -- many legal teams at
3 Facebook to manage contracts with a wide number of
4 providers.

5 Q. (By Mr. Melamed) And when did Facebook 03:58:44
6 start using that tool to track the capabilities
7 that a -- a third-party developer had entered a
8 contract in order to access?

9 A. My understanding is that the contracts
10 tool was integrated with the API XFN process at I 03:59:04
11 think in around 2019.

12 Q. Before the contracts tool was integrated
13 with the API XFN process, was there a tool used
14 internally at Facebook to track whether apps had
15 entered into contracts to access capabilities? 03:59:43

16 MR. SCHWING: Object to form.

17 THE DEPONENT: My understanding is that
18 the legal team managed the inventory of contracts
19 that had been signed between Facebook and
20 third-party developers, which governed their -- 04:00:02
21 their use of the platform.

22 Q. (By Mr. Melamed) Did they use a tool
23 that enabled them to look up which capabilities the
24 individual developer had entered a contract in
25 order to be permitted to access? 04:00:22

Page 1061

HIGHLY CONFIDENTIAL

1 MR. SCHWING: Object to form. 04:00:28

2 THE DEPONENT: Again, the tools that a
3 legal team have used would have -- would have
4 evolved significantly over time. Certainly my
5 understanding in -- in around 2013 and '14, was 04:00:42
6 that the legal team used Dropbox as a tool to
7 manage and store the contracts, that -- that
8 Facebook had engaged -- had entered into with
9 third-party developers relating to their use of the
10 platform. 04:01:06

11 Q. (By Mr. Melamed) And did the legal team
12 use any tools that would enable them to look up by
13 developer which capabilities that developer could
14 access because they had entered in contracts prior
15 to the implementation of the contracts tool? 04:01:27

16 MR. SCHWING: Object to form.

17 THE DEPONENT: My understanding is that
18 legal team would have had access to the -- to the
19 capability tool and that would have allowed them to
20 see, for a given set of app IDs the capabilities 04:01:45
21 that had been granted to those applications.

22 Q. (By Mr. Melamed) Where in the
23 capabilities tool does it indicate whether a
24 contract is required to access capability?

25 A. Today in the capability tool on the page 04:02:27

Page 1062

HIGHLY CONFIDENTIAL

1 that represents a capability, that field is 04:02:31
2 displayed.

3 Q. "Require_contract" in column X; is that
4 correct?

5 A. My understanding is the -- what's been 04:02:44
6 exported here in this table represents the same
7 information that would be shown in the capability
8 tool today.

9 Q. And you testified earlier that column X
10 did require_contract was added to the capabilities 04:02:58
11 tool in or around 2019, right?

12 A. That's broadly my understanding, although
13 I can't be sure of the precise date on which
14 that -- when that field was added.

15 Q. Before that field was added, where in the 04:03:16
16 capabilities tool did it indicate whether a
17 contract was required to access the capability?

18 MR. SCHWING: Asked and answered. Object
19 to form.

20 THE DEPONENT: Before that field was 04:03:35
21 added, there was no specific field in the
22 capability tool that indicated whether or not a
23 contract was required. As I mentioned earlier, my
24 recollection is that some capabilities, that
25 information was captured at a previous time in the 04:03:55

Page 1063

HIGHLY CONFIDENTIAL

1 description field for the given capability. 04:04:01

2 Q. (By Mr. Melamed) Going back to the
3 contracts tool, which you testified was used
4 starting in or around 2019. Well, let me start
5 there. 04:04:15

6 That's -- am I correctly stating that you
7 testified that the contracts tool started to be
8 used in or around 2019? That's my recollection of
9 when the contracts tool was integrated into the
10 API XFN process. Do you know whether -- when the 04:04:33
11 contracts tool was integrated into the API XFN
12 process, whether historical contracts; i.e.,
13 contracts that existed before that period of time,
14 were entered into that tool?

15 A. My understanding is that part of the 04:05:13
16 API XFN review process, as that was implemented
17 there was a review of prior capability grants, and
18 an attempt to determine whether or not an
19 appropriate contract existed to cover their use.

20 Q. So am I right to understand that though 04:06:12
21 the contract tool was implemented -- I'm sorry --
22 was integrated in or around 2019 with the -- with
23 the API XFN process, the information in the
24 contracts tool predates the integration?

25 MR. SCHWING: Object to form. 04:06:45

HIGHLY CONFIDENTIAL

1 Q. (By Mr. Melamed) Let me restate that. 04:06:47

2 That was a poorly phrased question.

3 Am I right to understand that when the

4 contract tool was integrated with the API XFN

5 process, there was an attempt made to bring 04:06:57

6 historical information regarding contracts

7 pertaining to capabilities into that tool?

8 MR. SCHWING: Object to form.

9 THE DEPONENT: My understanding is that

10 there was an -- an effort undertaken to identify 04:07:17

11 the contracts which existed with developers and the

12 grants of capabilities or the access to

13 capabilities that it was then determined required a

14 contract.

15 And then to remove those capabilities or 04:07:41

16 ensure such a contract existed to cover their use.

17 Although precisely which tool were used to -- to --

18 to execute that process, the contracts tool was

19 likely involved in some way.

20 MR. MELAMED: I'll note for the record 04:08:10

21 that we're going to follow up with Facebook

22 regarding production of the contracts tool or

23 relevant information from the contracts tool.

24 Q. (By Mr. Melamed) Column Y has a header

25 "api_xfn_submission_id." 04:08:28

HIGHLY CONFIDENTIAL

1 What does that mean? 04:08:37

2 A. My understanding is first of all that
3 this column doesn't contain any data. And also my
4 understanding is that this refers to a historical
5 mechanism by which the ID of a submission to the 04:08:56
6 API XFN process for this -- for this specific
7 capability would have been stored, or could have
8 been stored.

9 Q. Was there a point in time at which there
10 were values entered into the API XFN submission ID 04:09:19
11 field?

12 A. It's possible that there were values
13 there. It's also possible that this was a field
14 added by a developer or by an engineer in -- in
15 anticipation of a process which ended up being 04:09:42
16 operationalized a different way.

17 Q. Okay. I'm going to scroll over a few.
18 Just so we get contact. Sorry, I didn't
19 mean to do that.

20 Okay. So my screen just collapsed the 04:10:15
21 columns where I had to stretch them out, but we're
22 on column Z, which is "risk_level."

23 What is meant by risk_level?

24 A. My understanding is that risk_level
25 refers to a categorization of capabilities that was 04:10:38

Page 1066

HIGHLY CONFIDENTIAL

1 performed in around 2018 or so. 04:10:47

2 Q. So prior to that cate- -- categorization
3 of capabilities that was performed in around 2018
4 or so, is it accurate that risk level was not
5 reflected in the Capability table? 04:11:10

6 A. Risk level here refers to the -- the risk
7 levels created and assessed around this -- when
8 this -- when this effort was conducted in around
9 2018, so the -- the concept of risk level did
10 not -- as it -- as it's represented here did not 04:11:38
11 exist before then, as I understand it.

12 Q. How were the risk levels assessed in or
13 around 2018?

14 MR. SCHWING: Object to form. Outside
15 the scope. 04:11:51

16 THE DEPONENT: My understanding, a group
17 of cross-functional people came up with a taxonomy
18 and then assessed each capability against that
19 taxonomy to produce the risk level.

20 Q. (By Mr. Melamed) What is indicated by 04:12:11
21 the values in column Z?

22 MR. SCHWING: Object to form.

23 MR. MELAMED: Let me -- let me restate
24 that, or ask a different question.

25 Q. (By Mr. Melamed) In row 2, column Z, the 04:12:25

Page 1067

HIGHLY CONFIDENTIAL

1 risk level is identified as "1." 04:12:28

2 Do you see that?

3 A. I see "1" in the column, yeah.

4 Q. What does "1" mean in this context?

5 A. My understanding is, that in this 04:12:42

6 context, "1" means a low risk level.

7 Q. So the numerical entry in the field

8 reflects a risk level along -- is a numerical

9 spectrum; is that correct?

10 A. My understanding is that there are -- 04:13:04

11 there are six potential values for -- for risk

12 level. Although I can't be confident whether

13 they're necessarily sequential.

14 Q. I'm sorry.

15 So your testimony is that there are risk 04:13:22

16 levels 1 through 6; is that true?

17 A. My understanding is that there were --

18 this column relates to a -- a risk assessment

19 process which had 6 levels.

20 Q. And were those 6 levels designated by the 04:13:43

21 numbers 1 through 6?

22 A. My understanding is that the number here

23 would refer to one of the risk levels.

24 Q. Right.

25 And do you know the other numbers that 04:13:58

Page 1068

HIGHLY CONFIDENTIAL

1 would reflect risk levels that could be entered in 04:14:03
2 this field?

3 A. I can remember that 1 was low, and I can
4 remember that 6 represented a "SEV," but I -- I
5 don't recall hearing the precise names of the other 04:14:24
6 risk levels.

7 Q. What is a "SEV" in this context?

8 A. SEV is a site event.

9 Q. And what does that mean in the context of
10 risk level assessment? 04:14:42

11 MR. SCHWING: Object to form.

12 THE DEPONENT: My understanding is that
13 that would refer to a site event -- a specific site
14 event having been created in Facebook's site event
15 tool. 04:15:05

16 Q. (By Mr. Melamed) What did it mean to
17 create a site event. What -- did -- let me
18 withdraw that.

19 When a site event was created in
20 Facebook's site events tool, you said one reflected 04:15:19
21 the low risk -- the lowest risk level in column Z,
22 correct?

23 A. No, I said that 1 represents low, not
24 necessarily lowest.

25 Q. Did 6 represent a high risk level? 04:15:44

HIGHLY CONFIDENTIAL

1 MR. SCHWING: Object to form. 04:15:55

2 THE DEPONENT: As I said, I -- my
3 understanding is that 6 referred to SEV, if my
4 recollection serves correctly. But I don't know if
5 that's necessarily equivalent to high or highest. 04:16:07

6 Q. (By Mr. Melamed) Who would you ask if
7 you wanted to understand what the numbers meant in
8 column Z in terms of the relative risk level
9 indicated?

10 MR. SCHWING: Object to form. 04:16:34

11 THE DEPONENT: Do I understand the -- the
12 details of the data represented in this column I
13 would speak to Mr. Molaro in the first instance.

14 Q. (By Mr. Melamed) Just to be clear, I'm
15 not asking about the details of what made this 04:16:52
16 particular capability a 1. I'm just trying to
17 understand what the values that could be entered in
18 this column meant.

19 And my understanding your testimony,
20 please correct me if I'm wrong, is that there were 04:17:06
21 6 potential values that could be entered here. 1
22 reflected a low risk level. 6 reflected a SEV.
23 But other than -- is that correct so far?

24 A. That's correct so far as per my -- my
25 recollection. I -- I've reviewed many documents 04:17:28

Page 1070

HIGHLY CONFIDENTIAL

1 and many things in preparation for today's 04:17:30
2 testimony, and -- and remembering every -- every
3 reflection of everything that a -- would have been
4 represented -- would have meant by the numbers in
5 this table is -- I just don't have it in my head 04:17:49
6 right now.

7 Q. Fair enough.

8 I'm not here to argue about whether you
9 should have done more or less, but I am just asking
10 for your testimony about this. 04:17:57

11 A. That's my understanding of what those --
12 what those fields mean. I -- I recall there being
13 6 levels, and I -- I recall 1 being low and 6 being
14 SEV. Those are the details behind that.

15 Q. And do you recall whether the remaining 04:18:13
16 levels were indicated by the numbers between 1 and
17 6?

18 A. My understanding is that risk level is --
19 is a 1, 2, 3, 4, 5, 6 field.

20 But, again, I -- I -- I'm not sure it's 04:18:31
21 necessarily entirely linear in terms of risk level.
22 My understanding is that different risk levels
23 refer to different types of risks, not necessarily
24 progressing risk.

25 Q. That's very helpful. Thank you. 04:18:54

Page 1071

HIGHLY CONFIDENTIAL

1 Do you know what types of risk each risk 04:18:57
2 level referred to?

3 MR. SCHWING: Object to form.

4 THE DEPONENT: The two that I can
5 remember is 1, low; and 6, SEV. I don't recall 04:19:08
6 what -- what the others -- what the other risk
7 levels referred to.

8 Q. (By Mr. Melamed) Is there a document
9 somewhere within Facebook that reflects what the
10 risk levels in column Z of Exhibit 429 Capability 04:19:22
11 table mean?

12 MR. SCHWING: Object to form.

13 THE DEPONENT: My understanding is -- my
14 understanding is that more detail on that may have
15 already been provided -- as -- as part of the 04:19:44
16 metadata for these tables, when they were produced
17 in this case.

18 Q. (By Mr. Melamed) Just to be clear, your
19 understanding is that the indication of what is
20 meant by each risk level in column Z is reflected 04:20:03
21 in the metadata of the Full table of which
22 Exhibit 429 is an excerpt?

23 MR. SCHWING: Object to form.

24 THE DEPONENT: Let me -- let me restate
25 that. My understanding is -- is that -- these 04:20:24

Page 1072

HIGHLY CONFIDENTIAL

1 tables being produced to you, there was also 04:20:27
2 information describing the fields that were
3 produced to you. And I think it's possible, though
4 I, again, can't say for certain that more
5 information about these risk levels may well be 04:20:43
6 contained in these documents.

7 Q. (By Mr. Melamed) I think I located what
8 you were talking about. And this is a description
9 from counsel of what the 6 risk levels were in this
10 column. And I'd like to go through these with you 04:21:32
11 and see if this is an accurate reflection of what
12 these meant.

13 So 6 is a SEV, correct?

14 A. My recollection is that 6 represented
15 SEV. But, again, I'm going off memory here. 04:21:49

16 Q. Five reflects user content; is that
17 right?

18 A. As I mentioned previously, I -- I don't
19 recall the -- the various other risk levels. If
20 you have the document, maybe it would useful to put 04:22:05
21 it on the screen.

22 Q. It's not a document that's been produced
23 in this case. It's an attachment to the email
24 provided by counsel. So it's not -- it hasn't been
25 produced by Facebook. So that's why I'm asking you 04:22:16

Page 1073

HIGHLY CONFIDENTIAL

1 these questions. 04:22:19

2 It indicated the -- the attachment to the
3 email provided by Facebook indicates that 5 was a
4 user content.

5 Do you have any reason to -- to doubt 04:22:32
6 that that is an accurate recollection of what 5
7 indicated?

8 MR. SCHWING: Object to form.

9 THE DEPONENT: As I sit here today, I
10 have -- I have no reason to doubt it. 04:22:46

11 Q. (By Mr. Melamed) And just to be clear,
12 it's "user_content." I don't know if that changes
13 your answer in that regard.

14 A. Again, I -- I don't recall the specifics
15 of the -- of the risk level here. 04:23:00

16 Q. Do you know what "user_content" means in
17 this context?

18 A. User content in general would refer to --
19 typically refer to information, content created by
20 users. 04:23:18

21 Q. Okay. Four, according to the
22 communication we received from counsel, is
23 "user_generated_content."

24 MR. SCHWING: Object to form. I'll just
25 object once to this line of questioning asking 04:23:33

HIGHLY CONFIDENTIAL

1 about a document that isn't placed before the 04:23:36
2 witness.

3 MR. MELAMED: Sure.

4 Q. (By Mr. Melamed) Just to repeat, 4 is
5 "user_generated_content"? 04:23:44

6 Do you know what user_generated_content
7 means?

8 A. Typically that would refer to content
9 generated by a user.

10 Q. What is the difference between 04:24:06
11 "user_generated_content" and "user_content"?

12 A. I can't be sure of the difference between
13 those two determinations, I'm afraid.

14 Q. Who would you ask to determine the
15 difference between those two descriptions? 04:24:27

16 A. I would speak to Mr. Molaro in the first
17 instance.

18 Q. "3" indicates "high_uui."
19 Does that sound correct to you?

20 MR. SCHWING: Object to form. 04:24:43

21 THE DEPONENT: Again, I -- I don't recall
22 these -- these -- this level of detail
23 specifically.

24 Q. (By Mr. Melamed) Do you understand --

25 A. I have no reason to doubt it. 04:24:55

Page 1075

HIGHLY CONFIDENTIAL

1 Q. I apologize for cutting you off. 04:24:56

2 Do you understand what high_UII means in
3 this context?

4 MR. SCHWING: Object to form.

5 THE DEPONENT: I -- I don't have a 04:25:09

6 canonical definition of this in a personal
7 capacity. I -- to me that would make sense, this
8 high user identifiable information, but I can't be
9 sure what -- what's meant by "high" in this
10 context. 04:25:25

11 Q. (By Mr. Melamed) The communication
12 indicates that "2" equals high without a
13 modification, unlike "3," which is high_UII.

14 Do you understand what is meant by "high"
15 in the context of risk level in Exhibit 429? 04:25:40

16 MR. SCHWING: Object to form.

17 THE DEPONENT: Again, this is referring
18 to a -- some form of a risk taxonomy that was
19 created in around 2018. That's my understanding of
20 what risk refers to. And, also my understanding is 04:26:00
21 that this risk taxonomy is -- is no longer in use
22 at the company.

23 Q. (By Mr. Melamed) Who created the risk
24 taxonomy in 2018?

25 A. My understanding is -- there was a 04:26:18

Page 1076

HIGHLY CONFIDENTIAL

1 working group put together to -- a cross-functional 04:26:18
2 working group put together to -- to review
3 capabilities, and that my understanding is that
4 it's likely that group came up with the -- the
5 taxonomy. 04:26:28

6 Q. Who is in that working group?

7 MR. SCHWING: Object to form. Outside
8 the scope.

9 THE DEPONENT: Yeah, I'm not sure of the
10 specific names of the people that were involved in 04:26:44
11 working group four years ago.

12 So, yeah, I wouldn't want to give --
13 speculate as to the names of people that were
14 involved.

15 Q. (By Mr. Melamed) As you sit here today, 04:26:53
16 you don't know the -- do you know the names of any
17 individuals who were involved in that working
18 group?

19 A. I couldn't 100 percent confirm whether or
20 not a particular individual was involved in -- in 04:27:08
21 the working group that met to come up with this
22 classification.

23 Q. Who would you ask if you wanted to find
24 out who was involved in working the group that come
25 up with this classification? 04:27:24

Page 1077

HIGHLY CONFIDENTIAL

1 MR. SCHWING: Object to form. 04:27:29

2 THE DEPONENT: Yeah, I would speak to
3 Mr. Molaro in the first instance.

4 Q. (By Mr. Melamed) Back to Exhibit 429,
5 column AA, has the header 04:27:45
6 "contracts_required_details."

7 What does that mean?

8 A. My understanding is that -- some of the
9 capabilities there would be information entered
10 into the tool which explained which contract -- or 04:28:11
11 which type of contract may be required to be signed
12 in order to access this capability.

13 Q. Were the values in this field free-form
14 entries?

15 A. My understanding, having reviewed this 04:28:42
16 document in -- in preparation, is that -- this was
17 text -- was a text field.

18 Q. Do you know who entered the
19 information -- let me preface this by saying I'm
20 not looking for any specific person who entered 04:28:59
21 specific information as to a specific capability.

22 So with that preface, do you know who
23 would have been responsible for entering
24 information in column AA regarding
25 "contracts_required_details" for capabilities as 04:29:16

Page 1078

HIGHLY CONFIDENTIAL

1 reflected in the field? 04:29:21

2 MR. SCHWING: Object to form.

3 THE DEPONENT: My understanding is that
4 the Facebook legal team are the determinants of --
5 of which specific contracts or which specific 04:29:34
6 additional agreements are required to be signed by
7 a developer to access a given capability.

8 Q. (By Mr. Melamed) Am I right to
9 understand that the -- the entries in the contracts
10 required details, when those entries exist, were 04:29:51
11 entered by members of the Facebook legal team?

12 A. My understanding is the legal team are
13 the -- are the people responsible for determining
14 which agreements are -- are required. It doesn't
15 necessarily mean that an individual on the legal 04:30:12
16 team has to tie that data into the tool.

17 Q. They may have provided it to somebody
18 else who entered into it the tool.

19 A. They may have provided it to somebody
20 else who entered it into the tool. 04:30:24

21 Q. Did this column, contracts required
22 details exist at the inception of the capabilities
23 tool?

24 A. This field did not exist in 2013, which
25 is when I understand that the -- the capabilities 04:30:49

Page 1079

HIGHLY CONFIDENTIAL

1 tool is today was -- was built. 04:30:53

2 Q. When was this field added to the
3 capabilities tool?

4 A. I think -- I think this is one of the
5 fields added in -- in around 2018 or later when the 04:31:06
6 capability tool was -- was improved at the time.

7 Q. When this field was added to the
8 capabilities tool, were entries regarding contracts
9 required details for capabilities that preexisted
10 the additional risk field added into the 04:31:32
11 capabilities tool?

12 A. Sorry, can you ask that again.

13 Q. When this field was created as part of
14 the capabilities tool, their exists -- their
15 existed a series of capabilities that had already 04:32:01
16 been entered into the tool by that date, correct?

17 A. My understanding is that when this field
18 was -- this field was added later, then the
19 capability tool being created and being in use and
20 so yes, my understanding is that when this field 04:32:22
21 was added there were a number of capabilities
22 already in the tool.

23 Q. Did any of those capabilities that were
24 already in the tool require contracts?

25 A. There -- there -- there would have been 04:32:50

Page 1080

HIGHLY CONFIDENTIAL

1 capabilities in the tool that, then, required a 04:32:52
2 witness who was expected that third-party
3 developers would need to sign additional lead
4 agreements in order to access.

5 Q. So when this field was created, when the 04:33:05
6 details about the contracts those preexisting
7 capabilities were required to enter into in order
8 to access the capability entered into this field?

9 A. My understanding from -- from reading
10 this document, is there are not that many entries 04:33:28
11 into the contracts -- contracts required details
12 field. So my understanding is that the data entry
13 would not have necessarily been comprehensive.

14 Q. Did the data regarding the details of
15 contracts that were required to access capabilities 04:33:51
16 evolved in any other document at Facebook?

17 MR. SCHWING: Object to form.

18 THE DEPONENT: As I mentioned previously,
19 my recollection is that on some occasions the
20 description fields of the capability and the tool 04:34:17
21 may have included information about the types of
22 contracts or additional agreements that -- that may
23 have been needed.

24 Q. (By Mr. Melamed) Was that information
25 included anywhere else in Facebook, other than in 04:34:29

HIGHLY CONFIDENTIAL

1 the contract itself? 04:34:33

2 MR. SCHWING: Object to form.

3 THE DEPONENT: I can't say for -- for

4 certain if it was stored at any time in -- in -- in

5 anywhere else. I don't -- I'm not aware of a tool 04:34:51

6 that's structured this information in that way.

7 Q. (By Mr. Melamed) Column AB has the

8 header "permissible_scenarios."

9 What does that mean?

10 A. My understanding is that this is another 04:35:19

11 free text field which for some capabilities tends

12 to describe the permissible scenarios for which

13 this capability can be used.

14 Q. In circumstances where there's an entry

15 in the permissible scenarios field, who is 04:35:38

16 responsible for defining those scenarios as

17 reflected in the tool?

18 MR. SCHWING: Object to form.

19 THE DEPONENT: My understanding is

20 that -- is that a cross-functional working group -- 04:35:56

21 well, today, API XFN is responsible for -- my

22 understanding is that today, and since the process

23 was introduced in 2019 the API XFN process is

24 responsible for determining the permissible

25 scenarios. 04:36:20

Page 1082

HIGHLY CONFIDENTIAL

1 Q. (By Mr. Melamed) Prior to 2019 was the 04:36:21
2 permissible scenarios column part the capabilities
3 tool?

4 A. My understanding is that the permissible
5 scenarios column or field was added again sometime 04:36:37
6 in -- in 2018 or so.

7 Q. The header of column AC is
8 "non_permissible_scenarios."

9 What does that mean?

10 A. My understanding of this column -- is -- 04:37:10
11 is similar to the previous one, which is the -- the
12 sum capabilities. This is a text description of
13 scenarios where it would not be permissible to
14 grant this capability to an app.

15 Q. Was this field also introduced in 2019? 04:37:33

16 A. My understanding this is -- again, as
17 I've mentioned previously I -- I can't be accurate
18 on the specific dates of when these fields were
19 producing, but my understanding is that this is one
20 of the fields, additional fields that was 04:37:52
21 introduced in around 2018.

22 Q. And is the API XFN process responsible
23 for entries in this field where the entries exist?

24 A. Today my understanding is that the
25 API XFN process is responsible for articulating at 04:38:13

HIGHLY CONFIDENTIAL

1 the permissible and nonpermissible -- sorry -- 04:38:16
2 determining the permissible and nonpermissible
3 scenarios for which a capability can be used. But
4 I can't be, you know -- that doesn't necessarily
5 mean that's what -- what's reflected in this tool 04:38:30
6 is -- is -- an articulation that that group
7 created.

8 Q. Is the intent that what is reflected in
9 fields "permissible scenarios" and "nonpermissible
10 scenarios" reflect the articulations that API XFN 04:38:51
11 process has engaged in regarding each capability?

12 MR. SCHWING: Object to form. Outside
13 the scope.

14 THE DEPONENT: Again, my understanding is
15 the -- that these fields attempt -- are supposed to 04:39:16
16 represent the permissible and nonpermissible
17 scenarios that the capability should be granted
18 for.

19 Q. (By Mr. Melamed) And during the history
20 of these -- these fields nonpermissible scenarios 04:39:35
21 use in the capabilities tool, who was -- who or
22 what groups had been responsible for define --
23 defining the nonpermissible scenarios?

24 A. My understanding is that prior to API --
25 the API XFN process, it would have been a 04:40:02

HIGHLY CONFIDENTIAL

1 combination of product, partnerships and then the 04:40:05
2 legal or privacy teams that would have come up with
3 guidance on when and when the capability -- when
4 the scenarios in which a capability should or
5 should not be used. 04:40:27

6 Q. Were the scenarios that were -- that you
7 just referred to reflected in the capabilities tool
8 at any point in time? And by the -- by the ones
9 you just referred to, I mean the scenarios
10 developed by product, partnerships and the legal 04:40:51
11 privacy team?

12 A. This table contains -- these columns
13 contain information. It's not, you know, plausible
14 for me to determine from this when that information
15 was added to the tool or -- and, therefore, you 04:41:13
16 know, which group or entity would have been
17 responsible for creating it. It's -- it's hard for
18 me to give that level of detail from this
19 information.

20 Q. Am I right to understand your testimony 04:41:24
21 that this column, the nonpermissible scenarios
22 column was added in or around 2019?

23 A. I can't be sure exactly when it was
24 added. My understanding is it's one of the columns
25 that was added in -- in around 2018. But, again, 04:41:45

HIGHLY CONFIDENTIAL

1 I -- I'm not confident in exactly when this column 04:41:50
2 was added to the table -- sorry, to the tool.

3 Q. Column AD has the header
4 "in_scope_for_el."

5 What does that mean? 04:42:07

6 A. My understanding is that that refers to
7 the E1 designation within the FTC consent order.

8 Q. What is the "E1 designation" within the
9 FTC consent order?

10 MR. SCHWING: Object to form. 04:42:36

11 THE DEPONENT: Yeah. Sorry, Austin.

12 So the -- the best place to go to get
13 that definition would -- would be the -- the FTC
14 consent decree. I can give my -- my understanding
15 of it, which is that it defines -- 04:42:51

16 MR. SCHWING: I'm sorry, Mr. Cross, just
17 don't reveal anything that you've learned from
18 attorneys with respect to the FTC consent order.
19 If you have independent factual knowledge with
20 respect to it, you may provide that. 04:43:09

21 THE DEPONENT: Thank you, Austin.

22 My understanding is that it -- it defines
23 a class of consumer -- consumer apps and certain
24 types of information, and then there is a
25 determination made as to whether or not an app or 04:43:27

Page 1086

HIGHLY CONFIDENTIAL

1 such information is within the scope of that 04:43:36
2 definition. And my understanding is that this
3 column reflects whether or not that capability has
4 been determined to be within the scope of -- of E1.

5 Yeah, I'm -- I'm not like -- there's likely a 04:43:56
6 better definition than the one I was able to give
7 you there, that's -- that's -- that's the best
8 understanding I have of what it means.

9 Q. (By Mr. Melamed) Do you know if E1 is a
10 reference to a subsection of the FTC consent order? 04:44:09

11 A. My understanding is the term comes from
12 within the FT- -- FTC consent order, but I couldn't
13 confirm if it was a -- a specific subsection. But
14 my understanding is that that refers to some
15 sections or a section somehow within the FTC 04:44:30
16 consent order.

17 Q. And so if you look at row 2, the value
18 for in scope for E1 is "no."

19 What does that mean?

20 A. My understanding is that that means that 04:44:46
21 this capability is not within the scope of E1.

22 Q. And if the capability -- a different
23 capability in the Capability table was in scope for
24 E1, would the field say "yes"?

25 A. My understanding is that if that column 04:45:10

HIGHLY CONFIDENTIAL

1 contains a "yes," that means the capability has 04:45:12
2 been assessed as being within the scope of E1.

3 Q. Do you know who conducted the assessments
4 to determine whether a capability was in -- in
5 scope for E1? 04:45:22

6 A. My understanding is that that would have
7 been an assessment done by the Facebook's legal and
8 privacy teams.

9 Q. Do you know if there exists a -- a
10 separate log of capabilities that indicated whether 04:45:42
11 the group of capabilities goes in the scope for E1?

12 MR. SCHWING: Object to form.

13 THE DEPONENT: I'm sorry. I'm not sure
14 I -- I understand the question. Can you help me
15 with what you mean by "group of capabilities." 04:46:18

16 Q. (By Mr. Melamed) Sure.
17 Do you know if there exists a list
18 separate from the Capability table of the
19 capabilities that were determined to be in scope
20 for E1? 04:46:30

21 MR. SCHWING: Object to form. Outside
22 the scope.

23 THE DEPONENT: My understanding is
24 that -- the capabilities tool -- the -- the
25 information contained in this table represents 04:46:45

Page 1088

HIGHLY CONFIDENTIAL

1 Facebook's determination as to whether or not a 04:46:49
2 capability is within scope of E1.

3 Q. (By Mr. Melamed) Column AE has the
4 header "Oncall_short_name_id."

5 What does that mean? 04:47:08

6 A. My understanding is that that refers to
7 similar to the column we reviewed earlier about the
8 Oncall, which would refer to the engineering team
9 responsible for maintaining this capability.

10 Q. So the number reflected in the cell row 2 04:47:37
11 in column AE identifies the engineering team
12 responsible for maintaining this capability.

13 A. I think it refers to either an
14 engineering team as defined by the Oncall -- the
15 Oncall system. It may refer to a specific 04:48:05
16 engineer. I'm not entirely sure.

17 But my understanding is that it refers to
18 the Oncall system in some way which would refer to
19 either an engineer or set of engineers responsible
20 for managing the capability. 04:48:24

21 Q. Okay.

22 MR. MELAMED: So that completes -- I just
23 have a few more questions about the capabilities
24 tool, generally. That completes the specific
25 column by column review of these. Are you okay to 04:48:32

Page 1089

HIGHLY CONFIDENTIAL

1 go a few more minutes while I ask these questions 04:48:37

2 and then we can take a break?

3 THE DEPONENT: Yes, happy to proceed.

4 MR. MELAMED: Okay. Thanks.

5 Q. (By Mr. Melamed) So using -- we've 04:48:49

6 identified -- or we've discussed -- I'm sorry --

7 three documents comprising the capabilities tool,

8 two yesterday and one today.

9 Is that your recollection as well?

10 A. We reviewed three sets of tabular data, 04:48:59

11 yes.

12 Q. Okay. And I -- I recognized that those

13 are excerpts, so I'm not asking you to do the

14 exercise or imagine right now using those excerpts.

15 I'm asking you to describe how you would go about 04:49:12

16 doing that -- this exercise.

17 If you wanted to identify all

18 capabilities that Tinder, the app "Tinder," could

19 access, how would you do so?

20 MR. SCHWING: Object to form. 04:49:29

21 THE DEPONENT: I would attempt to

22 identify Tinder's app ID, and then I would go to

23 the capability tool and enter that app ID or search

24 for the app name Tinder. And then the tool would

25 view for me the capabilities that Tinder had access 04:49:55

Page 1090

HIGHLY CONFIDENTIAL

1 to. 04:49:59

2 Q. (By Mr. Melamed) So the app ID is not
3 one of the fields in Exhibit 429, the Capability
4 table; is that right?

5 A. This table represents the list of 04:50:14
6 capabilities that exist in the capability tool at
7 the time that this table was generated.

8 Q. Okay. So let's walk through -- through
9 the tool that you would use.

10 So I put up on the screen Exhibit 428, 04:50:55
11 which we marked yesterday.

12 Which is the capability Grants table.

13 And the app ID is listed in column C
14 here. So is -- is this -- once you had determined
15 the app ID for Tinder, is this where you would 04:51:13
16 start in -- in -- started your process of
17 determining all the capabilities for which Tinder
18 had been granted access?

19 A. I'm sorry, as a Facebook employee, and I
20 may have access to the capability tool, and so the 04:51:31
21 process I would use as a Facebook employee would be
22 to use the capability tool.

23 Q. So as a non-Facebook employee, plaintiffs
24 don't have access to the capability tool.

25 So how would you use the documents that 04:51:48

Page 1091

HIGHLY CONFIDENTIAL

1 have been produced here, that we discussed to 04:51:49
2 identify the full set of capabilities that Tinder
3 had been granted access to?

4 MR. SCHWING: Object to form.

5 THE DEPONENT: If I had the three 04:52:09
6 documents that we've walked through at my disposal,
7 I would identify the app ID for Tinder, and then I
8 would filter this table based on that app ID.

9 And then my understanding, is that that
10 would indicate the capabilities that Tinder had 04:52:25
11 over the time period for which this table contains
12 data.

13 I would then use the capability ID field
14 and cross-reference that against the table that
15 we've just spent an hour and a half going through. 04:52:52

16 Q. (By Mr. Melamed) Okay. So just -- I
17 want to restate this just to make sure I'm clear.
18 I think I understand, and please correct me if I'm
19 wrong.

20 So you would start in Exhibit 428 -- once 04:52:59
21 you had determined Tinder's app ID, you would start
22 in Exhibit 428 with the full, not yet so the full
23 document, you would filter by Tinder's app ID,
24 would -- that would identify -- and that's in
25 column C. Once you had done that, column D would 04:53:18

HIGHLY CONFIDENTIAL

1 indicate all the capabilities that Tinder had at 04:53:23
2 one time -- had access to, as reflected by the
3 capabilities tool, and then you would take those
4 capability IDs and go to the Capability table which
5 is Exhibit 429 that we were looking at this 04:53:40
6 morning, and look each of those capabilities up in
7 order to identify what those capabilities were; is
8 that right?

9 A. That's a high-level description of the
10 process I would follow, yes. 04:53:55

11 Q. Am I missing anything?

12 A. I don't think so.

13 Q. Now what if you wanted to understand all
14 apps that had access to a specific individual
15 capability, for example, friends_religion_politics. 04:54:12

16 Using the documents we looked at
17 yesterday and today, how would you go about
18 determining the list of apps and the time period
19 during which those apps had access to
20 friends_religion_politics? 04:54:32

21 MR. SCHWING: Object to form.

22 THE DEPONENT: So before I answer the --
23 the question, I think it's important to note that
24 just because an app had access to a capability, it
25 doesn't necessarily mean that it was using the 04:54:47

HIGHLY CONFIDENTIAL

1 capability or accessing the data that the 04:54:51
2 capability involved. That -- that's just what --
3 was making sure that's -- that's clear and on the
4 record.

5 My process would be to start with the 04:55:07
6 prior table we reviewed today, which is the list of
7 capabilities. Identify the ID of the capability
8 that I was interested in, and then I would filter
9 this table based on that capability ID.

10 Q. (By Mr. Melamed) Just to be clear, the 04:55:28
11 prior table you were referencing that we looked at
12 this morning was Exhibit 429. And then when you're
13 saying "this table," is this the table presently on
14 my screen which is Exhibit 428, right?

15 A. That's correct. 04:55:45

16 Q. Okay. So just to talk that through
17 again, to make sure I understand it.

18 You would go to the full document that
19 Exhibit 429 reflects an excerpt of, search for
20 "friends_religion_politics," identify the 04:55:57
21 capability ID, the number associated with that
22 capability. And then go to Exhibit 428, filtered
23 by that capability ID, in column D, and that would
24 pull up all the app IDs in -- in column C that had
25 access to that capability, correct? 04:56:26

HIGHLY CONFIDENTIAL

1 MR. SCHWING: Object -- 04:56:32

2 THE DEPONENT: Had access to that --

3 Sorry, Austin.

4 MR. SCHWING: Object to form.

5 Go ahead, please. 04:56:36

6 THE DEPONENT: My understanding of this
7 table is that that would indicate the app IDs that
8 had access to that capability at some point in time
9 for which data is available in this -- in this
10 document. 04:56:56

11 Q. (By Mr. Melamed) Okay. And columns in
12 Exhibit 428, columns F, G, H and I, would indicate
13 the time period that you listed apps had access to
14 that capability; is that right?

15 A. Columns G and I would indicate the 04:57:18
16 date -- the date and time. Again, and this -- my
17 understanding is that that would reflect the -- the
18 time period when the app had access to the
19 capability.

20 But as I said previously, it's important 04:57:37
21 to note the -- that doesn't mean the app was in any
22 way necessarily using the capability, or indeed
23 that the capability returned the information that
24 you might think it would.

25 Q. The document -- go ahead. Sorry. 04:57:56

Page 1095

HIGHLY CONFIDENTIAL

1 determine whether an app made the API call for 04:59:28
2 which it was granted access by the Capabilities
3 table?

4 MR. SCHWING: Object to form.

5 THE DEPONENT: The Method table 04:59:48
6 identifies API calls made by a specific app. By
7 "method," some of those methods are gated by a
8 capability, but other -- other methods the -- the
9 behavior of the response is altered by a
10 capability, for example. 05:00:12

11 So it's not -- it's not a reliable way to
12 determine whether or not an app was accessing data
13 that was modified by a capability.

14 Q. (By Mr. Melamed) I understand that. I'm
15 trying to just understand the request from an app. 05:00:33

16 Where would I go to determine whether,
17 and if so, how many times an app requested -- I'm
18 sorry -- an app made an API call that -- for which
19 it was granted the capability of a capabilities
20 tool? 05:01:02

21 MR. SCHWING: Object to form.

22 THE DEPONENT: My understanding is in the
23 past, certainly there was a way of understanding
24 whether or not a given app capability pair was
25 being used, by which I mean, the app was making API 05:01:31

Page 1097

HIGHLY CONFIDENTIAL

1 calls that involved the check of a capability. 05:01:39

2 That information, I recall being

3 displayed in the -- in the capability tool at

4 one -- at one time in the past. Although precisely

5 where that data was stored today, again the tool 05:01:57

6 has evolved over time.

7 But I recall that information being

8 logged at one point in the past.

9 Q. (By Mr. Melamed) Do you know when that

10 information was logged in the capability tool -- or 05:02:09

11 let me rephrase that.

12 Do you know when the capabilities tool

13 stopped logging that information?

14 A. So it's important to say here that the

15 capability tool doesn't necessarily log that 05:02:31

16 information. That information is part of the API

17 code base that runs. I recall that that

18 information was displayed in the capability tool

19 starting in -- in -- in 2014 or so.

20 I -- I don't -- I -- I don't know if that 05:02:54

21 information is still displayed in the capability

22 tool, and I would imagine that it is still being

23 logged however.

24 Q. Do you know where the information is

25 being logged? 05:03:09

Page 1098

A. It's likely that that information is being stored in -- in Facebook's data warehouse. Again, my understanding is that that -- that is the kind of information that is used to determine whether or not an app is actively using a capability.

7 Q. And by data warehouse, do you mean
8 "Hive," or something different?

9 A. I'm referring to Hive when I -- when I
10 mean data warehouse. 05:03:40

11 Q. Do you know what table within Hive stores
12 that tracking information?

13 A. Do I know which -- which table -- sorry,
14 no, I don't have the specific name of the table
15 that may or may not contain that information. 05:04:06

16 Q. I'm sorry -- if you wanted to know
17 whether such a table existed in Hive and, if so
18 which table it was, who would you ask?

19 A. I would ask Mr. Molaro in the first
20 instance. 05:04:23

21 Q. And you said that though the capabilities
22 tool did not log that information, it reflected
23 that information starting in 2014; is that right?

| | | |
|----|---|----------|
| 24 | A. I recall the capabilities tool reflecting | |
| 25 | some reflection of capability app pair usage in | 05:04:49 |

HIGHLY CONFIDENTIAL

1 around 2014. 05:04:55

2 Q. Do you recall the point at which the
3 capabilities tool no longer reflected information
4 regarding capability app pairs? I'm sorry, calls
5 on capability app pairs? 05:05:14

6 A. So my personal involvement with the
7 capability tool ended in around 2015. And so
8 that's -- the period from 2013 or late 20- -- 2014
9 to '15 is -- is what I'm relying on here for my
10 testimony, so I'm using the phrase "my 05:05:36
11 recollection."

12 As I -- my understanding is that -- it's
13 likely that the usage of capability checks is -- is
14 still being logged. But I -- I can't confirm which
15 table, or whether or not or how that information is 05:05:59
16 represented in the capability tool today.

17 Q. When you left -- when you stopped using
18 the capabilities tool in your personal capacity as
19 a Facebook employee, was the information regarding
20 whether an app capability pair was still being 05:06:21
21 called, still reflected in the capabilities tool?

22 A. My -- my recollection is that that
23 information was -- was still reflected in the
24 capabilities tool. And I'm just being accurate on
25 the word here. My understanding is that it was 05:06:39

Page 1100

HIGHLY CONFIDENTIAL

1 logging if the capability was checked. 05:06:41

2 Q. What does it mean to -- to say a
3 "capability was checked"?

4 A. My understanding of -- of how capability
5 is implemented in the code base is that there is 05:06:56
6 a -- what's called a capability check, which is
7 a -- a function call given an app ID and a
8 capability as to whether or not the app had access
9 to the capability, and that's called a capability
10 check. 05:07:18

11 MR. MELAMED: We can go off the record.

12 THE VIDEOGRAPHER: Okay. We're off the
13 record it's 5:07 p.m.

14 (Recess taken.)

15 THE VIDEOGRAPHER: We are back on the 05:07:56
16 record. It's 5:21 p.m.

17 (Exhibit 430 was marked for
18 identification by the court reporter and is
19 attached hereto.)

20 Q. (By Mr. Melamed) Mr. Cross, I've just 05:21:18
21 marked Exhibit 430. It is a message discussion
22 between Steven Elia, Scott Mellon, Eddie O'Neil,
23 Drew Lackman, Cathy Huang, Tatyana --

24 SPECIAL MASTER GARRIE: Guys, I'm ready
25 to roll whenever you guys are. 05:21:34

Page 1101

HIGHLY CONFIDENTIAL

1 MR. SCHWING: We're -- we're underway, 05:21:37
2 Special Master Garrie. I don't know if you can
3 hear us. Yeah, we've started.
4 SPECIAL MASTER GARRIE: Counsel Melamed.
5 MR. MELAMED: Yup, we're going. Can you 05:21:49
6 hear?
7 SPECIAL MASTER GARRIE: Am I talking to
8 myself.
9 THE COURT REPORTER: Should we go off the
10 record? 05:22:01
11 MR. MELAMED: Yeah, let's go off the
12 record.
13 THE VIDEOGRAPHER: We're off the record.
14 (Recess taken.)
15 THE VIDEOGRAPHER: We're back on the 05:22:16
16 record. It's 5:22 p.m.
17 MR. MELAMED: So I've just marked
18 Exhibit 430. It's a message summary. The date on
19 the document is June 14th, 2018. It includes
20 Cathy Huang, Steve Elia, Scott Mellon, 05:22:39
21 Eddie O'Neil, Drew Lackman, Cathy Huang -- sorry,
22 if I mentioned her twice. Tatyana Poturnak and
23 Konstantinos Papamiltiadis. And it runs from
24 Bates number FB-CA-MDL-02898663 through -8668.
25 Q. (By Mr. Melamed) This message summary 05:23:10

Page 1102

HIGHLY CONFIDENTIAL

1 runs chronologically, so from top to bottom. 05:23:12

2 Have you had a chance to look at this
3 document, Mr. Cross?

4 A. I saw this document in preparation for
5 today, but I would appreciate a few minutes just 05:23:31
6 to -- to refamiliarize myself with it, if that's
7 okay.

8 Q. Okay. That's no problem. I'm going to
9 direct you to a very specific part of it.

10 MR. SCHWING: You want to tell him, Matt, 05:23:49
11 in advance so as he's reading he can kind of focus
12 on that. It's up to you.

13 MR. MELAMED: Thank you, Austin.

14 Q. (By Mr. Melamed) I am going to direct
15 your attention to the very bottom of the page 05:23:57
16 ending -8667, to the second to last page.

17 A. Okay. Cool. I appreciate it, Counsel.
18 Thank you.

19 Q. Thank you.

20 So it seems that in this message 05:24:55
21 Mr. Papamiltiadis is trying to pull together some
22 information, correct?

23 A. Yeah, I think KP is working with his team
24 to pull some information, yes.

25 Q. Okay. And do you know what information 05:25:07

Page 1103

HIGHLY CONFIDENTIAL

1 he's trying to pull together? 05:25:08

2 A. I think we understand by -- by reading
3 the -- reading the thread to -- to be able to
4 answer that question.

5 It doesn't -- it doesn't say here 05:25:58
6 precisely what information they're -- they're --
7 they're actually -- or what -- what -- what
8 question they're attempting to answer. That's --
9 that's not in this document, I don't think.

10 Q. Can you look at the attachments line on 05:26:09
11 the very first page. You'll see that there's an
12 attachment here titled "All apps with access to
13 friends_*data 06.14.2018 v2."

14 Does that inform the information -- does
15 that inform you about the information that 05:26:30
16 Mr. Papamiltiadis and his team were attempting to
17 pull together.

18 MR. SCHWING: Object to form.

19 THE DEPONENT: It suggests that -- sorry,
20 Austin. 05:26:41

21 MR. SCHWING: Object to form.

22 Go ahead and answer, if you can.

23 THE DEPONENT: It suggests they may be
24 trying to identify apps with -- with access to
25 friend -- friend data as -- but that -- that could 05:26:49

Page 1104

HIGHLY CONFIDENTIAL

1 be just part of what they're -- they're looking 05:26:54
2 for, for example. But that -- that -- that's
3 indicative of maybe what they were looking for.

4 Q. (By Mr. Melamed) All right. If you go
5 down to the bottom of the document -8667. I'm 05:27:07
6 sorry, the bottom of the page -8667.

7 A. Uh-huh.

8 Q. And you see Mr. Papamiltiadis has a link
9 to a Quip?

10 A. I see it. 05:27:25

11 Q. And in that, he appears to describe the
12 Quip, correct? He says three tabs. "1. device and
13 3p apps with access to friends data. 2. first
14 party apps and apps with no admins or info. 3. 3p
15 apps with short terms extensions." 05:27:43

16 A. I see that in the document.

17 Q. Okay. Do you understand him to be
18 referencing that Quip that those -- the description
19 of the three tabs. I'm sorry. Make it clearer.

20 Do you understand Mr. Papamiltiadis' 05:27:56
21 description of the three tabs generally referring
22 it to the document "fb.quip url" above that?

23 MR. SCHWING: Object to form.

24 THE DEPONENT: It's likely he was
25 referring to that, but I can't be 100 percent. 05:28:14

Page 1105

HIGHLY CONFIDENTIAL

1 Q. (By Mr. Melamed) In re- -- prep- -- in 05:28:16
2 preparing for today's testimony, did you review the
3 document at this Quip?

4 A. Yes, I had a -- I think I attempted to
5 access that document, yes. 05:28:38

6 Q. Okay. Were you able to access that
7 document?

8 A. Yeah, I think I was able to access that
9 document.

10 Q. And what was that document? What 05:28:47
11 information is contained in that document?

12 MR. SCHWING: Object to form.

13 THE DEPONENT: My recollection is that
14 that's a -- a list of -- of -- of apps and -- and
15 some information about them. 05:29:04

16 Q. (By Mr. Melamed) What information about
17 them is reflected in that document?

18 MR. SCHWING: Object to form.

19 THE DEPONENT: I don't -- I don't recall
20 specifically. But there's different information on 05:29:18
21 the different tabs. Sorry, I don't recall
22 precisely the information in that document.

23 Q. (By Mr. Melamed) Did the information in
24 that document reflect Mr. Papamiltiadis'
25 description of the three tabs? 05:29:34

Page 1106

HIGHLY CONFIDENTIAL

1 MR. SCHWING: Object to form. 05:29:40

2 THE DEPONENT: I -- I think I recall
3 seeing three tabs in -- in that document. But,
4 again, I can't be completely sure.

5 Q. (By Mr. Melamed) Do you know -- sorry. 05:29:58

6 You said you pulled -- you went to
7 that -- to access that document via Quip; is that
8 right?

9 A. Yes. I -- I -- I accessed that document
10 via Quip. 05:30:18

11 (Exhibit 431 was marked for
12 identification by the court reporter and is
13 attached hereto.)

14 MR. MELAMED: I just introduced what's
15 been marked as Exhibit 3 -- I'm sorry, 431. 05:31:00
16 Exhibit 431 is a -- is a spreadsheet FB-CA-MDL --

17 SPECIAL MASTER GARRIE: Where do I
18 find -- where -- I can't find Exhibit 431. I see
19 Exhibit 428.

20 MR. MELAMED: I think you're in a 05:31:22
21 different exhibit folder. There is deposition of
22 Simon Cross 30(b)(6).

23 SPECIAL MASTER GARRIE: I found it. I
24 found it. I found it. I was looking at it and I
25 clicked a different one. There's six folder forms. 05:31:31

Page 1107

HIGHLY CONFIDENTIAL

1 My apologies for interrupting. 05:31:33

2 MR. MELAMED: So Exhibit 431 is a
3 document with the Bates FB-CA-MDL-02898670. And it
4 was attached to the Exhibit 430.

5 Q. (By Mr. Melamed) Do you know if this is 05:31:56
6 the document you referred -- you reviewed at the
7 Quip URL that is identified in Exhibit 430 at the
8 bottom of page -8667?

9 A. No, my understanding is that this is a --
10 a different document. 05:32:18

11 Q. So this was a -- a document attached to
12 his message string, but is not the document being
13 referred to in that string -- or I'm sorry, in that
14 Quip URL; is that right?

15 A. My recollection is the document in the 05:32:32
16 Quip is -- is different to this.

17 Q. For instance, this Excel spreadsheet does
18 not have three tabs, right?

19 A. This Excel spreadsheet just has one tab.

20 Q. Did the document you reviewed have three 05:32:47
21 tabs?

22 A. Again, I think my recollection is that it
23 had three tabs.

24 MR. MELAMED: So Counsel, I'm going to
25 ask that you produce the document at the Quip that 05:33:03

Page 1108

HIGHLY CONFIDENTIAL

1 Mr. Cross accessed -- I don't -- or identify it, if 05:33:06
2 it has been produced. I'll state that I don't
3 think that it has been. It's possible I'm
4 incorrect but we -- we did search.

5 MR. SCHWING: Okay. I mean, I -- I 05:33:15
6 don't -- this is the first time this has been
7 raised, Mr. Melamed. You identified these
8 documents, you know, a while ago. We're happy to
9 communicate with you about that. I mean, I would
10 have hoped that we could have done this before the 05:33:28
11 deposition, actually. But happy to communicate
12 with you about that.

13 MR. MELAMED: All right. Thank you for
14 that offer. There are thousands, and probably tens
15 of thousands of documents that have been produced 05:33:40
16 by Facebook with Quips or --

17 SPECIAL MASTER GARRIE: All right.
18 Timeout.

19 MR. MELAMED: -- and have not been
20 produced. And we've addressed that before. 05:33:49

21 SPECIAL MASTER GARRIE: We're going to
22 take a timeout here. And we're going to answer my
23 question instead, which is, are there anymore
24 documents with attachments or exhibits that you're
25 not sure you have from Facebook that are Quip like 05:34:03

Page 1109

HIGHLY CONFIDENTIAL

1 this? 05:34:08

2 MR. SCHWING: For today's deposition you
3 mean?

4 SPECIAL MASTER GARRIE: For today's
5 deposition. 05:34:12

6 MR. MELAMED: I -- that's a good
7 question. I don't think so.

8 SPECIAL MASTER GARRIE: Okay. I just
9 want to make sure we get today's deposition done.
10 So in the interest of time, I was going to suggest 05:34:20
11 we take a five-minute break if there were and talk
12 with Counsel Schwing and see if we can quickly
13 rectify that.

14 MR. MELAMED: If Facebook can produce
15 that document in the next little bit, that would be 05:34:32
16 great. We can try and ask the questions that I had
17 hoped to ask about.

18 SPECIAL MASTER GARRIE: Well, when we
19 take our next break and Counsel Loeser goes, maybe
20 if there's time at the end we give them a couple 05:34:44
21 hours, they can find it, great. If not, I'll leave
22 it to the parties to sort out.

23 Back to you Counsel Melamed.

24 MR. MELAMED: Thank you.
25 05:34:52

Page 1110

HIGHLY CONFIDENTIAL

1 ///// 05:34:52

2 (Exhibit 432 was marked for
3 identification by the court reporter and is
4 attached hereto.)

5 MR. MELAMED: I just introduced what's 05:35:14
6 been marked as Exhibit 432. Exhibit 432 is an
7 Excel spreadsheet. FB-CA-MDL-02674226.

8 The metadata associated with the document
9 indicates that it was created on August 15th, 2018.

10 And the name of it is "20180815_nana" N-A-N-A 05:35:42
11 "ad hoc request_friends permission metadata.xlsx."

12 Q. (By Mr. Melamed) While you're reviewing
13 that, I'm downloading it so I can share my screen
14 and we can look at it more effectively.

15 Can you see my screen, Mr. Cross? 05:36:25

16 A. I can see your screen.

17 Q. Okay. Did you review this document in
18 preparation for today's testimony?

19 A. I have not seen this document before.

20 Q. Do you know -- let's -- let's go through 05:36:41
21 column by column and see if you can identify the
22 information being reflected in this document.

23 Column A is titled "App ID" and it has a
24 number.

25 Do you understand what's in the 05:36:58

Page 1111

HIGHLY CONFIDENTIAL

1 information in column A? 05:37:00

2 A. My understanding is that would refer to
3 the Facebook app ID of the given application.

4 Q. Okay. And column B is the "App Name"
5 that is associated with that App ID; is that right? 05:37:13

6 A. That's right.

7 Q. Column C indicates "Number of Friends
8 Permissions."

9 Do you know what that means?

10 A. No, I don't know what that means. It -- 05:37:27
11 it -- that could mean a number of different things.
12 So no, given I haven't reviewed this document or --
13 or how it was -- how it was created. I -- I can't
14 for certain explain what column C represents.

15 Q. In column D has the indicator "less than 05:37:57
16 100." [as read]

17 Do you know what that means?

18 A. Again, without -- there's no additional
19 context here, and I haven't seen this document
20 before. So it's hard for me to explain what I 05:38:12
21 think that -- that column means.

22 Q. Is the same true for columns E through H?

23 A. That would be correct.

24 MR. SCHWING: Mr. Melamed, I don't see
25 this on the list of exhibits that you -- you 05:38:25

Page 1112

HIGHLY CONFIDENTIAL

1 identified for us in advance of the deposition with 05:38:28
2 respect to topics 2 and 8.

3 MR. MELAMED: I'm happy to look at that
4 at a break. I believe it was identified, but we
5 can -- we can check that. 05:38:42

6 MR. SCHWING: Yeah. Okay. I mean, look
7 you -- you can go ahead and ask the questions. I
8 just wanted to state for the record I'm looking at
9 a June 3rd email, I don't -- don't see that on here
10 in terms of the documents you indicated the witness 05:38:52
11 should take a look at for today's deposition. But
12 happy to discuss that with you.

13 Q. (By Mr. Melamed) Does the title of the
14 document which I -- the metadata states is
15 friend -- is again, "20180815_nonadhoc 05:39:10
16 request_friends permission metadata.xls -- xlsx,"
17 indicate anything to you about what this document
18 is about?

19 A. Could you read that more slowly for me,
20 please. It's a long -- it's a long string. 05:39:29

21 Q. Of course.

22 So the first part of it is 20180815. And
23 I will tell you that that appears to reflect the
24 date created metadata which is August 15th, 2018.
25 And there's an underscore that's Nana, N-A-N-A, 05:39:47

Page 1113

HIGHLY CONFIDENTIAL

1 ad hoc request_friends permission metadata. 05:39:53

2 Does that help you understand the
3 information that's being reflected in this
4 document?

5 A. So thank you for reading it more slowly. 05:40:14

6 I mean, it -- it suggests something to do with
7 friend permissions and I -- I see the column here,
8 the column C "Number of Friend Permissions," but it
9 doesn't have much more context than that.

10 Q. Are you familiar with the app "This is 05:40:36
11 Your Digital Life"?

12 A. I have heard of the -- of the app -- This
13 is Your Digital Life.

14 Q. And what is your understanding -- in what
15 context have you heard of the app, This is Your 05:40:49
16 Digital Life?

17 A. I've heard of that in the context of
18 Cambridge Analytica.

19 Q. If you go to line 28,122 in this
20 document, do you see that column B "App Name" 05:41:08
21 reflects "thisisyourdigitallife"?

22 A. I see that on the screen.

23 Q. And do you see that the "Number of
24 Friends Permissions" in this document associated
25 with This is Your Digital Life is five? 05:41:25

Page 1114

1 A. Again, I see that in the -- in the 05:41:31
2 document.

3 Q. Do you know how many times Facebook users
4 downloaded This is Your Digital Life? Let me
5 restate that. 05:41:44

```
6         Do you know how many Facebook users
7 signed in to This is Your Digital Life?
```

8 MR. SCHWING: Object to scope. Object to
9 the form of the question.

10 And, again, I think this was not an 05:41:54
11 exhibit that was identified in June 3rd, email.

12 THE DEPONENT: I'm not aware of the
13 number of people that have -- what was your phrase,
14 sorry.

15 Q. (By Mr. Melamed) Number of Facebook 05:42:13
16 users who logged in to This is Your Digital Life?

17 A. I'm -- I'm not aware of the number of
18 Facebook users who logged in to This is Your
19 Digital Life.

20 Q. I'll -- I'll represent to you that 05:42:23
21 Facebook publicly reported approximately 270,000
22 Facebook users logged in to This is Your Digital
23 Life.

| | | |
|----|---|----------|
| 24 | Does that sound accurate to you? Do you | |
| 25 | have any reason to doubt that? | 05:42:39 |

HIGHLY CONFIDENTIAL

1 MR. SCHWING: Object to the form. It's 05:42:40
2 outside the scope of the deposition.

3 THE DEPONENT: I have no reason to doubt
4 what you're saying. But, again, I -- I don't
5 recall those numbers. 05:42:53

6 Q. (By Mr. Melamed) Okay. I'm just trying
7 to establish background that would help you
8 potentially testify regarding the tracking
9 information in this. So if that's not helpful,
10 that's okay. And we can move on. 05:43:14

11 (Exhibit 433 was marked for
12 identification by the court reporter and is
13 attached hereto.)

14 MR. MELAMED: I just identified what's
15 been marked as Exhibit 433. It is an email string 05:44:43
16 that's Bates No. FB-CA-MDL-01952426 to -52427. The
17 last in time is from Dan Rose to Ime Archibong and
18 Francisco Varela dated June 22nd, 2018. The
19 subject "Re: V1 extensions."

20 Q. (By Mr. Melamed) Did you review this 05:45:26
21 email string in preparation for today's testimony?

22 A. Yes, I looked at this document in
23 preparation for today.

24 (Discussion off the stenographic record.)

25 Q. (By Mr. Melamed) Okay. Is this -- I'm 05:46:21

Page 1116

HIGHLY CONFIDENTIAL

1 sharing my screen now, and I'm on the page ending 05:46:25

2 -427. The first in time email is from Dan Rose to

3 Ime Archibong and Francisco Varela saying -- and

4 the subject is "V1 extensions" saying "Molly just

5 said we found five more companies that had 05:46:39

6 extensions. How did we miss these earlier?"

7 And Mr. Varela responds "Team counted on

8 Eddie and data science team for 'source of truth'

9 on what apps had v1 API or v2 API access with

10 special permissions to Friends data after 05:47:00

11 May 2015."

12 What does "source of truth" mean in this

13 context.

14 MR. SCHWING: Object to form.

15 THE DEPONENT: Sorry, this is a document 05:47:19

16 written by Mr. Varela several years ago and source

17 of truth, might mean different things in different

18 context. So I can't give a canonical definition of

19 that. We would have to ask Mr. Varela.

20 My understanding is that this is a group 05:47:39

21 of people pulling together to try and get a

22 complete understanding of which apps had access to

23 API.

24 Q. (By Mr. Melamed) Right.

25 So your testimony today in part concerns 05:48:02

Page 1117

HIGHLY CONFIDENTIAL

1 tracking information that Facebook provided to 05:48:08
2 third parties, right, or you understand that to be
3 part of the testimony you're offering, correct?

4 A. If I remember the -- the topics
5 correctly, then yes, I think that's fine. 05:48:28

6 Q. So I'm looking at this document and
7 asking questions about it to try and determine how
8 Facebook tracked at this -- the point in time when
9 this document was created which apps have v1 API or
10 v2 API access with special permissions to friends 05:48:46
11 data after 2015.

12 So Mr. Varela -- and how do you pronounce
13 his last name so I get it correct.

14 A. I think it's "Varela."

15 Q. Thank you. 05:49:10

16 Mr. Varela indicates that Eddie O'Neil
17 pulled data the week before this email is written
18 to try to pull together a source of truth on what
19 apps had v1 API or v2 API access with special
20 permissions to friends data after May 2015. 05:49:29

21 Do you see that?

22 MR. SCHWING: Object to form.

23 THE DEPONENT: I see that.

24 Q. (By Mr. Melamed) What tools on or around
25 June 2018 did Facebook use to track which apps had 05:49:55

Page 1118

HIGHLY CONFIDENTIAL

1 v1 API access to friends data after May 2015? 05:50:00

2 A. So -- so my understanding is that there
3 were -- in terms of tracking which apps had access
4 to what we've talked about the -- the API Hits
5 tables and so on, and then my understanding in 05:50:36
6 order to pull this together one of the sources
7 would have been the capability tool.

8 Another source would have been the
9 gatekeeper tool. And my understanding is that's --
10 those are two of the tools. 05:50:55

11 I think the third one would have been
12 potentially included is a tool called site bar.

13 Q. What is the gatekeeper tool?

14 A. The gatekeeper tool is a tool inside
15 Facebook which is used to gate access to features 05:51:20
16 across Facebook's apps and services.

17 Q. How does the gatekeeper tool differ from
18 the capabilities tool?

19 A. Gatekeeper and capabilities are different
20 tools. 05:51:40

21 Q. So what is -- what does -- can you
22 explain the differences between them, please.

23 MR. SCHWING: Object to form.

24 THE DEPONENT: The capability tool is --
25 is specific to app -- app -- app Facebook platform 05:51:54

Page 1119

HIGHLY CONFIDENTIAL

1 apps and app IDs. 05:52:01

2 The capability tool is used -- sorry, the
3 gatekeeper tool is used at Meta to gain access to a
4 number of other different things, such as user
5 facing features. 05:52:18

6 Q. (By Mr. Melamed) Does the gatekeeper
7 tool include information about apps access to APIs?

8 A. To -- does it today, the capability -- my
9 understanding is the gatekeeper tool does not
10 contain information about apps having access to 05:52:55
11 certain APIs.

12 Q. Did the gatekeeper tool have information
13 regarding apps access to APIs as of June 2018?

14 A. My understanding is that there were some
15 features in the Facebook developer platform that 05:53:21
16 were gated by the gatekeeper tool in 2018.

17 Q. Did those features include access to
18 Graph version 1.0 API?

19 A. Exactly what was gated by which tool
20 has -- has -- has changed over time. And so I 05:53:49
21 can't be exactly certain of exactly what was being
22 gated by that -- by the gatekeeper tool in -- in,
23 at the time you're referencing.

24 So hard for -- hard for me to give a
25 precise answer on the fly. 05:54:07

Page 1120

HIGHLY CONFIDENTIAL

1 Q. So the context of what I'm asking is, I'm 05:54:09
2 trying to determine -- you had mentioned that
3 Mr. O'Neil had likely used the capabilities tool
4 and gatekeeper tool and something else we haven't
5 yet discussed called site bar, to identify the apps 05:54:19
6 as of June 2018 that had access to v1 API or access
7 to v2 API with special permissions to friends data
8 after May 2015.

9 Did I understand -- am I correctly
10 summarizing what you said? 05:54:45

11 A. My understanding is that those were the
12 tools that this team likely were -- were looking
13 into, yes.

14 Q. All right. Does Facebook still have the
15 information that was in the gatekeeper tool as of 05:55:06
16 June 2018?

17 MR. SCHWING: Object to form. Outside
18 the scope.

19 THE DEPONENT: My understanding is that
20 there -- there was an effort undertaken to -- 05:55:20
21 sorry. I -- I'm not familiar with the -- the --
22 the details of the -- the logging which is kept
23 about the gatekeeper tool and exactly what is --
24 what is still stored today.

25 Q. (By Mr. Melamed) Does the gatekeeper 05:55:42

HIGHLY CONFIDENTIAL

1 tool still exist today at Facebook? 05:55:43

2 A. The gatekeepers tool still exists at
3 Facebook.

4 Q. And it contains information about apps
5 that are on Facebook's platform? 05:55:55

6 A. My understanding is that the capabilities
7 tool is -- is the source of truth as to how private
8 APIs are -- are governed and the apps that have
9 access to them.

10 Q. What is the difference between a private 05:56:23
11 API and a capability?

12 A. A capability refers to a -- a specific
13 mechanism of -- of gating behavior or change --
14 sorry. Let me start again.

15 A capability refers to a specific 05:56:40
16 mechanism for modifying platform API behavior for
17 specific apps.

18 The private app, as a general term would
19 refer to a -- a mechanism of accessing information
20 which is not available, not generally available. 05:57:00

21 Q. Are all capabilities subsumed within the
22 definition of private APIs?

23 MR. SCHWING: Object to form.

24 THE DEPONENT: Sorry, help -- help me
25 understand. Let me get this the right way around 05:57:18

Page 1122

HIGHLY CONFIDENTIAL

1 THE DEPONENT: Sorry, Austin. 05:58:57

2 MR. SCHWING: Object to form.

3 Go ahead and answer, if you can,

4 Mr. Cross.

5 Q. (By Mr. Melamed) Yeah, I thought that's 05:59:01

6 what you just testified. I'm really not trying to

7 trick you. I'm just trying to get an understanding

8 of the relationship between these two -- between

9 private APIs and capability?

10 A. So a capability modifies the API behavior 05:59:14

11 in some way. One of the things that a capability

12 could do is -- is grant an app access to additional

13 information, but it could also do many other

14 things.

15 So there's -- there's not a direct 05:59:38

16 relationship between capabilities which is a

17 specific mechanism of -- of controlling access or

18 controlling API behavior changes and -- and the --

19 the phrase private API which -- which indeed might

20 mean different things in different context. 05:59:54

21 Q. Am I right to recall that -- that your

22 testimony the gatekeeper tool contained information

23 about private APIs?

24 A. I'm not sure that's -- I'm not sure

25 that's completely accurate, no. The gatekeeper 06:00:21

Page 1124

HIGHLY CONFIDENTIAL

1 tool is a -- a mechanism of -- of gating access 06:00:25
2 to -- to features. In that sense it's similar to
3 the capability tool.

4 My understanding is that -- there were
5 some gatekeepers, as they're called, which -- the 06:00:43
6 way they worked would have allowed apps to access
7 additional information.

8 Q. What type of additional information are
9 you talking about?

10 A. It depends on the specific gatekeeper and 06:01:07
11 the exact functionality that that gatekeeper was
12 designed to modify.

13 Q. Would gatekeepers have ever been designed
14 to modify access to user information?

15 A. Sorry, that's -- that's a very broad 06:01:30
16 question, as in gatekeeper is widely used at
17 Facebook for a number of preferences.

18 Can you be more specific in the context
19 you mean?

20 Q. I'm just trying to understand what 06:01:40
21 information is reflected in the gatekeeper tool.

22 A. So the information reflected in the -- in
23 the gatekeeper tool would be a gatekeeper which is
24 a -- a specific -- which is a specific thing.

25 And -- and then the gatekeeper tool would identify 06:02:08

Page 1125

HIGHLY CONFIDENTIAL

1 which entities that pass or fail that gatekeeper. 06:02:17

2 Q. Did gatekeeper ever identify entities
3 that passed or failed -- let me withdraw and
4 restate it. I'm trying to use your language. I'm
5 not quite sure I understand it. 06:02:53

6 Did the gatekeeper tool ever identify
7 apps that passed or failed gatekeeper --
8 gatekeepers to access friends permissions?

9 MR. SCHWING: Object to form.

10 THE DEPONENT: So my understanding is 06:03:33
11 that there were at times or was at -- at one time a
12 gatekeeper that allowed apps to bypass version
13 deprecations. And -- and that was a -- one of the
14 things in -- in gatekeeper.

15 Q. (By Mr. Melamed) Is the information 06:04:00
16 about which apps were permitted to bypass the
17 version deprecation -- the version deprecations
18 still present in the gatekeeper tool?

19 A. My understanding is -- the effort was
20 undertaken to migrate that information from the 06:04:22
21 gatekeeper tool into the capability tool. And so
22 my understanding is the capability tool is -- is
23 reflective of that information.

24 Q. Is -- when was the gatekeeper tool last
25 used to reflect information about which apps were 06:04:39

Page 1126

HIGHLY CONFIDENTIAL

1 permitted to bypass particular version 06:04:46

2 deprecations?

3 MR. SCHWING: Object to form.

4 THE DEPONENT: And so the -- the

5 migrate -- a range of migrations happened from -- 06:05:03

6 the gatekeeping tool into the -- into the

7 capability tool. That -- that happened over a

8 period of time. I think there were some migrations

9 that took place in 2014. And some more migrations

10 that took place in 2018 and 2019. 06:05:25

11 Q. (By Mr. Melamed) Is it your

12 understanding that the capabilities tool has

13 entries reflecting the apps that were permitted to

14 bypass deprecations of Graph API version 1.0?

15 A. My understanding is that the capability 06:05:54

16 tool is reflective of Facebook's best understanding

17 of -- of API gating mechanisms.

18 Q. When we discussed the capability tool, it

19 was on an individual API basis and not a, for

20 instance, Graph API basis, do you -- is that 06:06:16

21 accurate?

22 MR. SCHWING: Object to form.

23 THE DEPONENT: No, that's -- that's not

24 accurate. What we discussed was capabilities in

25 the capability tool. 06:06:29

Page 1127

HIGHLY CONFIDENTIAL

1 Q. (By Mr. Melamed) Is there a capability 06:06:35
2 in the capability tool reflective of an apps
3 ability to bypass Graph API deprecations?

4 MR. SCHWING: Object to form.

5 THE DEPONENT: My understanding is that 06:06:54
6 there are capabilities which enable features from
7 different API versions for certain developers.

8 Q. (By Mr. Melamed) Right.

9 So let's -- let's use an example. There
10 were a series of APIs deprecated from Graph 1.0, 06:07:14
11 when Graph version 2.0 was introduced, right?

12 A. There are a number of changes between API
13 version 1 and API version 2.

14 Q. And some of those changes involved
15 deprecations of certain APIs, right, such as 06:07:37
16 friends permissions and read stream?

17 A. Let's -- let's be clear the friends
18 permissions are not APIs. They're -- they're
19 permissions. And so these -- these -- these
20 details are -- I think are important in the 06:07:54
21 context.

22 Q. So the deprecations can return the
23 friends_* APIs, correct?

24 A. No, the -- the friends_* refers to -- to
25 a set of permissions not -- not APIs. 06:08:13

Page 1128

HIGHLY CONFIDENTIAL

1 Q. Can you identify one API associated with 06:08:17
2 the friends_*permission?

3 A. So an API to get the users likes, for
4 example, is -- is an API and what's returned by the
5 API is -- is controlled by permissions. 06:08:42

6 Q. Is the read stream an API?

7 A. Do you mean -- no. Read_stream is what
8 you're referring to is read_stream that -- that --
9 in that form it refers to specifically a
10 permission, I understand. 06:09:06

11 Q. When Facebook deprecated Graph 1.0 API,
12 that deprecation included a series of APIs within
13 that, right? So Graph 1.0 was kind of the big
14 picture and it involved a collection of APIs, some
15 of which were deprecated when it deprecated the 1.0 06:09:41
16 and went to 2.0; is that correct?

17 MR. SCHWING: Object to the form.

18 THE DEPONENT: There are a large number
19 of changes between, you know, several changes
20 between version 1 and version 2. There were some 06:10:00
21 permissions which were no longer available in
22 version 1 -- sorry in version 2. There were some
23 changes to the underlying API methods as well, if I
24 recall. I don't remember the detail.

25 Q. (By Mr. Melamed) Okay. So let's talk 06:10:20

HIGHLY CONFIDENTIAL

1 about the read stream permission. 06:10:22

2 Do you recall that the read stream
3 permission was deprecated when Graph version 2.0
4 was introduced?

5 A. The read stream permission was a -- I 06:10:34
6 think included in API version 2. So it -- it
7 wasn't deprecated in API version 2.0 as I said.

8 Q. What about "friends_religion_politics,"
9 is that something you recall being deprecated in
10 version 2.0? 06:10:55

11 A. My understanding is that the -- the
12 version 2.0 behavior for standard apps did not
13 include different permissions, which that one was.

14 Q. Okay. And so the capabilities role
15 breaks out by individual friend permission which 06:11:18
16 apps have capabilities to call -- continue to call
17 on those friends permissions; is that right?

18 MR. SCHWING: Object to form.

19 THE DEPONENT: I don't recall the
20 capabilities tool breaking out individual 06:11:39
21 permissions that friends permissions that apps
22 would necessarily be able to call.

23 Q. (By Mr. Melamed) We -- we talked about a
24 hypothetical where I asked what we would do using
25 the documents Facebook had produced reflecting the 06:12:01

Page 1130

HIGHLY CONFIDENTIAL

1 capability tool to identify which apps have a -- 06:12:02
2 were granted capabilities with respect to
3 friends_religion_politics.

4 Do you remember that?

5 A. I don't think we were talking about 06:12:18
6 the -- friends_religion_politics in relation to the
7 -- the Capability tables earlier.

8 Q. Does the capability tool reflect whether
9 an app had the capability to continue accessing
10 Graph version 1.0 after it was deprecated? 06:12:42

11 MR. SCHWING: Object to form.

12 THE DEPONENT: In determining whether or
13 not an -- an app had -- first of all, there's a
14 number of features in API version 1. In these
15 versions -- these APIs are not distinct things. 06:13:12
16 They're the same Graph API with behaviors applied.

17 My understanding is that there is a
18 capability which allows apps to access deprecated
19 versions and precise behavior of that capability
20 changed over time. 06:13:48

21 Q. (By Mr. Melamed) Is your understanding
22 of "that capability" that it permitted access to
23 the entirety of Graph 1.0 API? Do you remember --
24 was -- provided -- provided by capability?

25 A. Which APIs or which API versions, my 06:14:12

HIGHLY CONFIDENTIAL

1 understanding is which API versions apps had access 06:14:16
2 to via that capability depended on a number of
3 factors, including the -- the time in which that
4 was the case.

5 Q. I don't think I'm -- my question is clear 06:14:38
6 or I'm asking it correctly.

7 Is -- does the capability tool -- putting
8 aside the reason that an app would have been
9 prevented -- provided continued access to make
10 calls based on Graph version 1 API. 06:14:58

11 Where did Facebook identify the
12 developers that could continue to access Graph 1.0
13 API after it was deprecated?

14 MR. SCHWING: Object to form.

15 THE DEPONENT: So the capability tool as 06:15:27
16 I understand it, is -- is -- contains one way of
17 identifying that.

18 And the gatekeeper tool at the time, was
19 another mechanism in which some apps were included.

20 And so my understanding is -- is now that 06:15:47
21 all of the information is contained in the -- in
22 the capability tool.

23 Q. (By Mr. Melamed) Is it your
24 understanding that all of the historical
25 information from the gatekeeper tool is now in the 06:15:58

Page 1132

HIGHLY CONFIDENTIAL

1 capabilities tool? 06:16:01

2 A. My understanding is that informa- --

3 sorry, Austin.

4 MR. SCHWING: Object -- object to form.

5 Go ahead. 06:16:09

6 THE DEPONENT: My understanding is that

7 the information in the capability tool has been

8 backfilled to the best of Facebook's ability.

9 Q. (By Mr. Melamed) Does -- what do you
10 mean "the best of Facebook's ability"? 06:16:28

11 A. My understanding is the -- when the
12 migration of -- of gatekeepers that involved app
13 IDs to the capability tool occurred, that
14 information about those gatekeepers was included in
15 the capability tool. 06:16:53

16 Q. Does the gatekeeper tool still exist at
17 Facebook?

18 A. Yes, the gatekeeper tool still exists at
19 Facebook.

20 Q. What is it presently used for? 06:17:12

21 MR. SCHWING: Object to form.

22 THE DEPONENT: The gatekeeper tool is a
23 common way that teams at Facebook control who has
24 access to -- to the features in the Facebook family
25 of apps. 06:17:35

Page 1133

HIGHLY CONFIDENTIAL

1 Q. (By Mr. Melamed) Do you know how far 06:17:35
2 back the information in the gatekeeper tool goes?

3 MR. SCHWING: Outside the scope.

4 Go ahead.

5 THE DEPONENT: Yeah, I'm -- I'm not an 06:17:55
6 expert in the -- the data retention policies of
7 the -- of the gatekeeper tools, so I'm afraid I
8 don't have an answer for that question.

9 Q. (By Mr. Melamed) Okay. I'm not --
10 I'm -- I understand you're not an expert on that. 06:18:07

11 And I'm just trying to determine if this is
12 something that we are going to want to ask for that
13 has not been produced in the case. I'm trying to
14 understand the type of information it contains.

15 How that type -- how that information differs, if 06:18:17
16 at all, from the capabilities tool, and whether it
17 still exists in the gatekeeper tool.

18 Do you have any idea how far back the
19 data in gatekeeper tool goes? And not as an -- not
20 as an expert -- not as the witness for Facebook. 06:18:34

21 You individually as you sit here, do you
22 have any rough idea how far back the information
23 goes?

24 A. I'm not aware of the data retention
25 policies in the gatekeeper tool or what -- what is 06:18:49

Page 1134

HIGHLY CONFIDENTIAL

1 stored. 06:18:52

2 Q. Is there an individual -- I'm sorry? I
3 didn't mean to cut you off.

4 A. Sorry, I was -- just going to say, no,
5 I'm not aware of the -- the data retention policies 06:19:04
6 of the -- of the information in the gatekeeper
7 tool.

8 Q. If you were to want to understand more
9 about the specific type of information in the
10 gatekeeper tool as it presently exists, who would 06:19:20
11 you ask at Facebook?

12 MR. SCHWING: Object to form.

13 THE DEPONENT: I would speak to
14 Mr. Molaro in the first instance.

15 SPECIAL MASTER GARRIE: Counsel Melamed, 06:19:35
16 I'm going to encourage you to go to the next topic
17 since it's -- he's not an expert on it and has no
18 personal knowledge of it. And so on and so forth.

19 MR. MELAMED: Okay. Understood. I -- I
20 was trying to understand the way in which Facebook 06:19:49
21 tracks data.

22 SPECIAL MASTER GARRIE: Counsel Schwing.

23 MR. MELAMED: I'm sorry.

24 SPECIAL MASTER GARRIE: Counsel Schwing,
25 can you identify for plaintiff somebody who is the 06:19:59

Page 1135

HIGHLY CONFIDENTIAL

1 system or project or product manager of gatekeeper 06:20:01
2 internal to Facebook, and have that dialogue
3 offline, please, with Counsel Melamed; and
4 determine if it A, is reasonable; B, is responsive
5 and C, is appropriate. 06:20:13

6 But, at a minimum, provide further
7 context so we can keep today as going forward. If
8 appropriate. If you disagree so be it but...

9 MR. SCHWING: Yeah, I -- I -- I believe
10 Mr. Cross has testified that the capabilities tool 06:20:28
11 that the gatekeeper information in the capabilities
12 tool has been migrated -- I'm sorry, in the
13 gatekeeper tools are migrated in the capabilities
14 tool. But I'm happy to discuss that offline, and I
15 agree with moving -- moving along in the 06:20:42
16 deposition.

17 SPECIAL MASTER GARRIE: Okay. Thank you.

18 MR. MELAMED: Thank you. And can I just
19 extend that that request to include the site bar
20 tool as well. 06:20:50

21 MR. SCHWING: We're happy to meet and
22 confer with you, Matt.

23 MR. MELAMED: Okay. Just -- just for the
24 record noted that Mr. Cross identified the site bar
25 tool as another source of information in June 2018 06:21:04

HIGHLY CONFIDENTIAL

1 to pull together which apps had access to Graph 06:21:10
2 version 1 API or Graph version 2 API access with
3 special permission to friends data after 2015.

4 That's the purpose I'm asking for it. And I
5 understand -- I'm happy to talk to you about that 06:21:23
6 offline.

7 SPECIAL MASTER GARRIE: Just because --
8 just let me weigh in here, so we heard that. I
9 just want to set -- level set here. If the
10 information exists in one source, and it is 06:21:32
11 accessible and provided it's not necessary that all
12 sources need to be searched.

13 So I just want to keep that in mind,
14 Counsel Schwing. So before you go down the rabbit
15 hole, maybe first find out how the systems work 06:21:45
16 together and what data is in which, so that way we
17 don't have a lot of conversation about something
18 that may be encapsulated in something you've
19 already engaged with. So just meet and confer.
20 And work that out. 06:21:58

21 But more importantly, let's keep on point
22 with Mr. Cross, Mr. Melamed -- or Counsel Melamed
23 and Counsel Schwing, and move to next topic. And
24 this is noted on the record and we'll keep it
25 going. 06:22:09

Page 1137

HIGHLY CONFIDENTIAL

1 MR. SCHWING: Thank you. 06:22:10

2 MR. MELAMED: Thank you.

3 Why don't we take a five-minute break.

4 MR. SCHWING: Okay.

5 THE VIDEOGRAPHER: Okay. We're off the 06:22:17

6 record. It's 6:22 p.m.

7 (Recess taken.)

8 THE VIDEOGRAPHER: We're back on the

9 record. It's 6:38 p.m.

10 MR. MELAMED: So thank you for your 06:38:16

11 testimony, Mr. Cross, on topics 2 -- on behalf of

12 plaintiffs, we think we're going to need additional

13 testimony from a Facebook designee about some

14 questions you were unable to provide answers to.

15 But we'll deal with that off the record. I just 06:38:32

16 want to establish that on the record.

17 Otherwise thank you for your time. And I

18 understand that Mr. Loeser is going to return for

19 some follow-up questioning regarding topics 6 and

20 7 after a short break, or after a break. 06:38:48

21 MR. SCHWING: I -- I -- this is not the

22 time or place to argue. So we can talk about that

23 off -- offline. Matt, we had four days of -- of,

24 you know, five days almost now testimony and we

25 will meet and confer with you about that, and, 06:39:08

Page 1138

HIGHLY CONFIDENTIAL

1 you know, and try to work through the issues. And 06:39:11
2 as necessary and appropriate work with the
3 Special Master, and I'm happy to talk to you about
4 that.

5 MR. MELAMED: Thank you. 06:39:21

6 We can go off the record.

7 (Discussion off the stenographic record.)

8 THE VIDEOGRAPHER: We're off the record.

9 It's 6:40 p.m.

10 (Recess taken.) 06:40:21

11 THE VIDEOGRAPHER: We're back on the

12 record. It's 7:29 p.m.

13 EXAMINATION

14 BY MR. LOESER:

15 Q. It is still good morning for me, 07:37:08

16 Mr. Cross, but it's good evening for you.

17 And I have some questions. Hopefully it
18 won't take too long so we'll jump in and get
19 started.

20 Are you able to continue testifying now? 07:37:26

21 A. Yeah, let's keep going.

22 Q. Okay. Mr. Cross, in 2018 after --

23 MR. SCHWING: I'm sorry to interrupt you,

24 Mr. Loeser, it's just before we -- we can either do

25 this now or later. Before the -- the testimony 07:37:41

Page 1139

HIGHLY CONFIDENTIAL

1 started back up, I indicated that Mr. Cross wanted 07:37:44
2 to clarify something in his testimony. I'll leave
3 it to you as to whether or not you want to do that
4 now or in a little bit.

5 MR. LOESER: If it's okay with you, I'm 07:37:55
6 fine if you want to just ask him for his
7 clarification on -- on a redirect type basis. That
8 I think probably works best for the record. If
9 that works for you.

10 MR. SCHWING: Sure. That's fine. Thank 07:38:08
11 you.

12 Q. (By Mr. Loeser) Mr. Cross, in 2018 after
13 the Cambridge Analytica scandal broke, Facebook
14 received negative press about its data sharing
15 practices with apps and partners, correct? 07:38:20

16 MR. SCHWING: Outside the scope. Object
17 to form.

18 THE DEPONENT: I recall a number of
19 articles about Cambridge Analytica.

20 Q. (By Mr. Loeser) And were any of those 07:38:36
21 articles -- would you consider any of those
22 articles as having been negative press about
23 Facebook's data sharing practices?

24 MR. SCHWING: Same objections.

25 THE DEPONENT: I recall concerns being 07:38:52

Page 1140

HIGHLY CONFIDENTIAL

1 raised in -- in the media regarding -- regarding 07:38:54
2 the Cambridge Analytica situation, yes.

3 Q. (By Mr. Loeser) And Mr. Cross, after the
4 Cambridge Analytica scandal broke, Facebook sought
5 to sort out and identify which apps and partners 07:39:07
6 continued to have access to friends data through
7 whitelist; is that correct?

8 MR. SCHWING: Object to form.

9 THE DEPONENT: After Cambridge Analytica
10 the company -- the company undertook a number of 07:39:24
11 efforts to -- to understand and identify
12 applications that had access to information.

13 Q. (By Mr. Loeser) And sir, that
14 investigation looked specifically into applications
15 that had access to information through whitelists, 07:39:43
16 right?

17 MR. SCHWING: Outside the scope.

18 THE DEPONENT: My understanding is that
19 the -- the work that was done included looking at
20 the whitelists. But it also included other 07:40:01
21 areas -- areas of inquiry too.

22 Q. (By Mr. Loeser) And, Mr. Cross, isn't it
23 the case that Facebook struggled to identify all of
24 the apps and partners that had access to friends
25 data through whitelist? 07:40:17

Page 1141

HIGHLY CONFIDENTIAL

1 MR. SCHWING: Vague. 07:40:20

2 THE DEPONENT: The team working on
3 this -- this work faced -- faced a number of
4 challenges in pulling together a complete
5 understanding. And they -- they worked hard to do 07:40:37
6 so.

7 Q. (By Mr. Loeser) And Mr. Cross, what were
8 the challenges that the team investigating
9 whitelists and specifically whitelists that
10 provided access to friends database? 07:40:51

11 MR. SCHWING: Object to form. Outside
12 the scope.

13 THE DEPONENT: So I wasn't -- I wasn't
14 there at the time, I'm afraid. But -- sorry. It's
15 hard to comment precisely on all of the challenges 07:41:10
16 that -- that were faced at the time.

17 Q. (By Mr. Loeser) Mr. Cross, can you
18 testify as to any of the challenges that were faced
19 at the time?

20 A. So there were a number of different 07:41:30
21 whitelists in place, and different mechanisms for
22 API access. And the team had to pull together
23 to -- and did, in order to like fully understand
24 API access at the time.

25 Q. And, Mr. Cross, was one of the challenges 07:41:58

Page 1142

HIGHLY CONFIDENTIAL

1 MR. SCHWING: Object to form. 07:43:35

2 THE DEPONENT: So there were different

3 teams involved in managing access, the -- the

4 migration of the APIs in 2014 and 2015. And so

5 it's possible the number of people involved. 07:43:58

6 Q. (By Mr. Loeser) What -- what were the

7 different teams?

8 MR. SCHWING: Object to form. Outside

9 the scope.

10 THE DEPONENT: My understanding is there 07:44:13

11 were several teams involved, the platform

12 partnerships team, for example, and we have all

13 partnerships teams, so those were two examples of

14 teams that would have been involved.

15 Q. (By Mr. Loeser) And are those teams that 07:44:32

16 had the authority to whitelist an app or a partner

17 to have continued access to friend data?

18 MR. SCHWING: Object to form.

19 THE DEPONENT: Can you be specific about

20 the -- the time period you're talking about. 07:44:47

21 Q. (By Mr. Loeser) The period after 2014

22 when Graph API -- AP [sic] version 2 was uploaded?

23 A. I'm sorry, what was the original question

24 again?

25 Q. Did each of the teams you just mentioned 07:45:09

Page 1144

HIGHLY CONFIDENTIAL

1 have authority to whitelist apps or partners to 07:45:11
2 have continued access to APIs that emit friend
3 data?

4 MR. SCHWING: Object to form.

5 THE DEPONENT: The decision to whitelist 07:45:22
6 apps for continued access to friend permissions,
7 for example, was taken on a -- on a case-by-case
8 basis among mul- -- multiple teams to come to a
9 recommendation decision.

10 Q. (By Mr. Loeser) Okay. List for me all 07:45:41
11 of the teams that had the ability to do that?

12 MR. SCHWING: Object to form.

13 THE DEPONENT: I wouldn't be able to,
14 you know, a list of every single team that may have
15 been involved. Over time I can talk to some of the 07:45:58
16 ones I've already identified. There's the platform
17 product team, the platform partnerships teams and
18 they're the folks that would have worked together
19 to -- to come to a recommendation.

20 MR. LOESER: I'm going to introduce an 07:46:22
21 exhibit which is tab 34, which you should see
22 momentarily. And this is Exhibit 434.

23 Q. (By Mr. Loeser) And while this is coming
24 up, I'll tell you this is an email from Dan Rose to
25 Ime Archibong dated 6/22/2018 subject "Re: 07:46:59

Page 1145

HIGHLY CONFIDENTIAL

1 V1 extensions." 07:47:03

2 Do you see that, Mr. Cross?

3 A. I do see that.

4 Q. Why don't you take a minute to -- to look

5 through the email string. And I have a few 07:47:13

6 questions for you about the string.

7 A. Sure. Thank you.

8 MR. SCHWING: Mr. Loeser, I think for the

9 record this was previously marked not too long ago

10 as 433, Exhibit 433. 07:47:45

11 MR. LOESER: Thank you for that

12 clarification. We'll correct that.

13 MR. SCHWING: So you've -- you've now --

14 well, you can do what you want. If you want to

15 have it as an exhibit twice I just want to make 07:48:02

16 sure there's no confusion.

17 MR. LOESER: Why don't we go off the

18 record real quickly.

19 THE VIDEOGRAPHER: Going off the record.

20 It's 7:48 p.m. 07:48:17

21 (Recess taken.)

22 THE VIDEOGRAPHER: We're back on the

23 record. It's 7:50 p.m.

24 MR. LOESER: So for the record, we just

25 marked an exhibit and didn't realize it had just 07:50:58

Page 1146

HIGHLY CONFIDENTIAL

1 been marked previously today, in fact. So we will 07:51:01
2 pull down the second version of the same exhibit
3 and just refer to the originally marked version,
4 which is Exhibit 433.

5 Q. (By Mr. Loeser) And I have a couple more 07:51:16
6 questions about this exhibit.

7 Mr. Melamed asked you a few questions
8 already. So obviously I won't reask those. But
9 fair to say -- have you had a chance to take a look
10 at this or do you recall from your earlier review 07:51:31
11 of it today what it's about?

12 A. I have had a chance to review this just
13 now, thank you.

14 Q. Okay. So fair to say this email string
15 discusses the challenges Facebook faced in 2018 07:51:45
16 when trying to identify all the apps and partners
17 with continued access to friend data after 2014?

18 MR. SCHWING: Object to the form.

19 THE DEPONENT: This is conversation
20 between three people, and in the partnerships 07:52:00
21 organization they're -- they're discussing an
22 ongoing process to -- to determine a list of apps
23 that had access to additional permissions after
24 May 2015.

25 Q. (By Mr. Loeser) Let's look at the -- if 07:52:25

HIGHLY CONFIDENTIAL

1 you go to the second page of the string, the 07:52:26
2 message from Francisco Varela to Ime Archibong and
3 Dan Rose dated June 22nd, 2018.

4 And at the top of the page you're looking
5 at, and I'll read the paragraph and then I have 07:52:42
6 some questions for you about it.

7 Mr. Varela writes "Thanks, Ime. KP has
8 been a linchpin in this process thanks to his
9 institutional knowledge and lack of documentation
10 on our end." 07:52:55

11 Mr. Cross, was there a lack of
12 documentation at Facebook about which partners and
13 apps were whitelisted?

14 MR. SCHWING: Outside of the scope of
15 topics 6 and 7. 07:53:10

16 THE DEPONENT: So that's -- that's the
17 phrase I -- I see in the email here. There were --
18 there was documentation in various forms in various
19 places. I think that's some of what's being
20 reflected here. Exactly what these folks are -- 07:53:38
21 are talking about is -- is the opinion that's being
22 presented by -- by them in this email.

23 Q. (By Mr. Loeser) And later in the same
24 paragraph Mr. Varela writes "For clarify, I think
25 we're in a good spot on the device partners, but 07:53:56

Page 1148

HIGHLY CONFIDENTIAL

1 getting surprised now on more traditional platform 07:53:59

2 developers and the Atlas integration." [as read]

3 Can you tell me at Facebook what is the
4 difference between device partners and traditional
5 platform developers? 07:54:10

6 A. So traditional platform developers would
7 refer to apps and integrations that users would log
8 in with Facebook with and so on to get a social
9 experience.

10 Device partners refers to examples where 07:54:38
11 Facebook partnered with device manufacturers in
12 order to build Facebook experience in -- Facebook
13 experiences into those devices.

14 Q. And what are "Atlas integrations"?

15 A. I'm not sure what Atlas integrations 07:55:06
16 means in -- in this context.

17 Q. Do you know what it means in any context?

18 A. I know that Atlas is a company that
19 Facebook acquired in the past. But precisely what
20 was meant by an "Atlas integration" is -- is 07:55:24
21 nothing I know.

22 Q. And why would it be surprising that
23 traditional platform developers were whitelisted
24 for access to friend data?

25 MR. SCHWING: Outside the scope of the 07:55:45

Page 1149

HIGHLY CONFIDENTIAL

1 deposition. Object to form. 07:55:46

2 THE DEPONENT: So I think what you see in
3 this email is not necessarily surprised that they
4 were whitelisted more that the team is attempting
5 to pull together a full story. 07:56:10

6 Q. (By Mr. Loeser) And is it your
7 understanding that KP is -- was the most
8 knowledgeable person at Facebook regarding app and
9 partner whitelist?

10 MR. SCHWING: Outside the scope of the 07:56:38
11 deposition.

12 THE DEPONENT: What you see here, and my
13 understanding is the -- the group of people working
14 together to -- to attempt to understand the full
15 picture and KP was a -- a key person in that 07:56:53
16 process. You see him referred to here as a
17 linchpin. And my experience working with him is he
18 was certainly very knowledgeable about how these
19 processes worked.

20 Q. (By Mr. Loeser) Mr. Cross, to prepare 07:57:11
21 for your testimony today, did you reach out to KP
22 and ask him any questions about the whitelisting
23 process or results?

24 A. I did not speak to KP as part of my
25 preparations for today. 07:57:28

Page 1150

HIGHLY CONFIDENTIAL

1 Q. Mr. Cross, can Facebook identify all apps 07:57:31
2 that had access to APIs that emit friend data post
3 2014?

4 MR. SCHWING: Object to form.

5 THE DEPONENT: Again, I think it's 07:57:49
6 important to -- I'm unclear on what you mean by
7 "friend data" in this -- in this context.

8 Q. (By Mr. Loeser) Okay. How -- how does
9 Facebook use the term "friend data"?

10 A. The -- Facebook has used that term in a 07:58:10
11 number of different ways. Primarily, it refers to
12 content and information posted by a user that would
13 be made available via platform.

14 Q. So using that definition, can Facebook
15 identify all apps that had access to APIs that emit 07:58:36
16 friend data after 2014?

17 A. So my understanding is Facebook has
18 altogether an understanding of the apps which had
19 access to -- to friend data after 2014.

20 Q. Can Facebook identify all Facebook users 07:59:02
21 who installed apps with access to APIs that emit
22 friend data after 2014?

23 MR. SCHWING: Object to form. Outside
24 the scope.

25 THE DEPONENT: I'm not entirely confident 07:59:22

Page 1151

HIGHLY CONFIDENTIAL

1 that exactly what -- what Facebook can do in 07:59:24

2 that -- in that respect. Yeah, so -- so sorry.

3 I'm not sure I know what Facebook is able to do.

4 Q. (By Mr. Loeser) Does Facebook keep track

5 of all apps that users install? 07:59:43

6 A. Yes, my understanding is that Facebook

7 understands which apps have -- or which users have

8 authorized which applications.

9 Q. And Facebook also keeps track of all APIs

10 that apps have access to, right? 08:00:08

11 A. I don't think it's as simple as APIs that

12 an app has access to. Facebook tracks a number of

13 things related to apps and their interaction with

14 platform.

15 Q. Does Facebook track all of the different 08:00:30

16 ways that an app can acquire Facebook user

17 information from the Facebook platform?

18 MR. SCHWING: Object to form.

19 THE DEPONENT: Facebook logs, for

20 example, API calls made by third-party applications 08:00:48

21 against the Facebook platform.

22 Q. (By Mr. Loeser) So is there ever a

23 situation in -- in which Facebook would not know

24 that an app had access to Facebook user

25 information? 08:01:04

Page 1152

HIGHLY CONFIDENTIAL

1 MR. SCHWING: Object to form. 08:01:08

2 Q. (By Mr. Loeser) On the Facebook
3 platform?

4 MR. SCHWING: Object to form.

5 THE DEPONENT: I'm sorry. I'm not sure I 08:01:18
6 fully understand the question.

7 Can you ask it again, please.

8 Q. (By Mr. Loeser) Sure.

9 I'm just trying to make sure that the
10 record is clear on what Facebook knows about apps 08:01:27
11 that have access to friend data and users whose
12 information was made accessible to those apps.

13 So you could describe -- describe it in
14 any way that makes sense to you, but answer that
15 question. 08:01:41

16 MR. SCHWING: Compound. Vague.

17 THE DEPONENT: Facebook knows API calls
18 made by applications, and Facebook is able to
19 determine permissions that those users granted to
20 those applications. And together, those things 08:02:10
21 would help Facebook understand what information has
22 been made available to applications.

23 Q. (By Mr. Loeser) And that would include
24 what -- which users friend data was accessible to
25 those apps, right? Let me ask that a different 08:02:29

Page 1153

HIGHLY CONFIDENTIAL

1 way. 08:02:36

2 Again, I'm trying to figure out --

3 Facebook knows who all of its users are, right?

4 A. Facebook understands -- has -- Facebook

5 knows who its users are, yes. 08:02:50

6 Q. And Facebook knows which apps those users
7 install, right?

8 A. Facebook knows which apps users are --
9 have authorized.

10 Q. And Facebook -- and Facebook knows which 08:03:05
11 APIs -- apps that use the Facebook platform have
12 access to?

13 MR. SCHWING: Vague.

14 THE DEPONENT: Facebook logs the API
15 calls that those applications make against the -- 08:03:23
16 the Facebook developer platform.

17 Q. (By Mr. Loeser) And Facebook knows which
18 of those APIs emit friend data, right?

19 MR. SCHWING: Object to form.

20 THE DEPONENT: I mean, Facebook 08:03:39
21 understands which of those AP- -- APIs emit user
22 data. But whether or not that data included
23 friends information is -- was not necessarily
24 logged in the past.

25 Q. (By Mr. Loeser) Whether the information 08:04:12

Page 1154

HIGHLY CONFIDENTIAL

1 was accessible was logged however, right? 08:04:13

2 MR. SCHWING: Vague.

3 THE DEPONENT: Again, in what time period
4 are you referring to here.

5 Q. (By Mr. Loeser) After 2014. 08:04:30

6 A. So again, like -- can you ask the
7 question again. I want to make sure I'm fully
8 understanding it.

9 Q. Yes.

10 Again, I'm just trying to make sure the 08:04:54
11 record is clear on what information Facebook tracks
12 and has available to it.

13 And we've gone down the list of
14 questions, and now we're at the question of whether
15 Facebook knows which apps had access to friend 08:05:06
16 data.

17 After 2014?

18 A. So -- my understanding is Facebook has an
19 understanding of the apps which had the ability to
20 access some friends information after 2015. 08:05:36

21 Q. Mr. Cross, did Aleksander Kogan's sale of
22 Facebook data he obtained from the friends of users
23 who installed the, This Is Your Digital Life app,
24 exceed the use case for the app?

25 MR. SCHWING: Outside the scope of the 08:06:10

Page 1155

HIGHLY CONFIDENTIAL

1 deposition and object to form. 08:06:12

2 THE DEPONENT: That seems to be a
3 question about platform policy as -- as written,
4 which is not something I'm -- I'm particularly well
5 qualified to -- to provide an opinion on. I think 08:06:30
6 the best person to ask that question to would be
7 Ally Hendrix.

8 SPECIAL MASTER GARRIE: Mr. Cross, while
9 I appreciate you telling who's the -- are you
10 saying in your 30(b)(6) capacity that's who you 08:07:01
11 believe is the best person. You're not -- you're
12 not able to answer that question today as you sit
13 here, is that -- I was just reading the transcript.
14 So I'm a second behind, but I want to make sure I
15 understood your answer. 08:07:18

16 Can you answer that question or not, as
17 the 30(b)(6) capacity, right, let's be clear.

18 MR. SCHWING: Yeah, and -- and we've got
19 a scope objection there.

20 SPECIAL MASTER GARRIE: Yeah, with the 08:07:37
21 scope objections noted on the record. I just --
22 Mr. Cross?

23 THE DEPONENT: Yeah, that -- that --

24 SPECIAL MASTER GARRIE: If you're not
25 prepared -- like let me be clear. There's three 08:07:49

Page 1156

HIGHLY CONFIDENTIAL

1 possible answers. I'm not prepared to answer the 08:07:52
2 question. I am prepared to question [sic]. I
3 don't understand the question.

4 THE DEPONENT: Yeah, I'm not prepared to
5 answer the question. I think that's a question 08:07:59
6 about platform policy and it's determination of the
7 platform policy, which is not something that I'm
8 prepared to testify on.

9 SPECIAL MASTER GARRIE: And that's what I
10 thought I understood your answer as. I just wanted 08:08:09
11 to clarify it for the record. Thank you.

12 Back to you, Counsel Loeser.

13 Q. (By Mr. Loeser) And regardless of
14 whether you -- you believe you're prepared as a
15 30(b)(6) witness to testify to that or not which is 08:08:18
16 a question I suppose for another day, can you
17 answer the question?

18 A. You're asking me in a personal capacity
19 to answer the question?

20 Q. I'm just asking you to answer the 08:08:35
21 question. In what capacity you answer it I suppose
22 is something that can be determined. But I would
23 like for you to answer the question.

24 MR. SCHWING: Outside of the scope.

25 Object to form. 08:08:48

Page 1157

HIGHLY CONFIDENTIAL

1 THE DEPONENT: Yeah, I can try answering 08:08:51
2 the question again. We've had a number of things
3 go by, and if I'm going to try to answer it, I
4 should hear it again.

5 Q. (By Mr. Loeser) Did Aleksander Kogan's 08:08:57
6 sale of Facebook data he obtained from the friends
7 of users who installed the, This Is Your Digital
8 Life app, exceed the use case for the app?

9 MR. SCHWING: Same objections.

10 THE DEPONENT: Again, I don't feel I can 08:09:14
11 provide a Facebook answer in -- a company answer in
12 response to that question. I don't feel I'm the
13 most qualified person to do so. My understanding
14 is that developers shouldn't be sharing information
15 they received from the Facebook with a -- with an 08:09:29
16 unrelated other party.

17 Q. (By Mr. Loeser) And would that be
18 considered a use-case violation?

19 MR. SCHWING: It's outside of the scope
20 of the deposition. Object to form. 08:09:43

21 THE DEPONENT: Again, that's -- that's a
22 question about platform policy, which I don't --
23 which I don't feel well prepared to answer on, I'm
24 afraid.

25 Q. (By Mr. Loeser) Okay. Can you answer 08:09:58

HIGHLY CONFIDENTIAL

1 the question? 08:09:59

2 A. Again, I don't feel like I can answer the
3 question. As -- it would require me to have,
4 you know -- interpret policy which is not something
5 that I'm -- I'm an expert in being able to do. 08:10:10

6 Q. So you're not able to answer that
7 question.

8 MR. SCHWING: Same objections.

9 THE DEPONENT: Yeah, I don't -- I don't
10 feel -- I don't feel comfortable giving an answer 08:10:25
11 to that question given -- I'm just not that well
12 versed in Facebook's platform policy. And I want
13 to make sure that you get the right answers to your
14 questions.

15 MR. SCHWING: Special Master Garrie, may 08:10:42
16 I make a Rule 30 motion without Mr. Cross present.

17 SPECIAL MASTER GARRIE: Yeah, Mr. Cross
18 you can -- can you go to the break out room.

19 THE DEPONENT: Sure.

20 MR. SCHWING: Special Master Garrie, 08:11:03
21 Mr. Loeser is supposed to be asking questions about
22 topics 6 and 7. Mr. Cross is not designated to
23 discuss the use-case issues that are being asked
24 about. He's made that clear, but Mr. Loeser
25 continues to ask the questions. 08:11:18

Page 1159

HIGHLY CONFIDENTIAL

1 Mr. Cross is going to be providing 08:11:20
2 another deposition later in his personally
3 capacity. We've been going for now, you know, near
4 five days and we need to try to finish. So I would
5 request some relief here that we try to speed this 08:11:32
6 along on the topics he's actually designated for.

7 MR. LOESER: May I be heard,
8 Special Master Garrie.

9 SPECIAL MASTER GARRIE: Yeah.

10 MR. LOESER: So I'm asking questions that 08:11:43
11 are specifically and directly about friend sharing
12 and whitelisting. And friend sharing is what
13 Cambridge Analytica is all about. The notice, in
14 fact, refers to use cases with regard to
15 whitelisting which is what I'm about to ask further 08:11:56
16 questions on. I don't have more questions about
17 Cambridge Analytica. So we can move on from that.

18 But it is simply not true that questions
19 about Cambridge Analytica which is friend sharing,
20 the whole scandal friend sharing, does not relate 08:12:08
21 to the topic of friend sharing identified in the
22 notice.

23 So I don't think we need to have a long
24 fight about it because I don't have further
25 questions about the use-case issue regarding friend 08:12:16

Page 1160

HIGHLY CONFIDENTIAL

1 sharing, but I do have some additional questions 08:12:21
2 about use case relating to whitelisting because
3 it's specifically identified in --

4 SPECIAL MASTER GARRIE: It does state it
5 in the notice. 08:12:27

6 Counsel Schwing, any comment?

7 MR. SCHWING: So topic 6 is related to
8 the development of friend sharing, that's the
9 topic, the development of friend sharing. So this
10 is, you know, what we ought to be focused on. I 08:12:45
11 don't see -- so where -- where is this bit about --
12 the use case that you're talking about.

13 MR. MELAMED: 7A says and whether the
14 access granted exceeded the use case.

15 MR. SCHWING: Okay. And 7 is, the topic 08:13:03
16 is the decision to whitelist particular apps or
17 partners.

18 MR. LOESER: That's what I'm about to
19 talk about --

20 MR. SCHWING: Sorry. Please let me 08:13:14
21 finish, Mr. Loeser.

22 MR. LOESER: Sorry.

23 MR. SCHWING: The decision to whitelist
24 particular apps or partners and how Facebook
25 determined which entities to whitelist. 08:13:18

Page 1161

HIGHLY CONFIDENTIAL

1 So the topic is not sort of anything and 08:13:20
2 everything ever to do with, you know, about
3 whitelisting. It's a specific narrow topic. It
4 sounds like Mr. Loeser is moving -- moving along
5 and I -- I think we all share a mutual interest 08:13:32
6 in -- in finishing. I just want to make sure that
7 we're not --

8 SPECIAL MASTER GARRIE: I agree. I am
9 ready to rule.

10 So Mr. Loeser, your questions he's 08:13:40
11 answered them. They are gracefully in a gray zone
12 that will bear into an area where it will prove
13 more problematic for you. So if you're moving to
14 the next set of questions as 7A dictates you're
15 more than welcome to cover that topic as indicated 08:13:58
16 and as defined. I don't have any problems with
17 that. And I think that is appropriate.

18 So I will move -- we will move forward
19 with the questions. But friend sharing does relate
20 to a use case under 7A, under whitelisting 08:14:15
21 defend- -- depending -- the definition of
22 whitelisting is defined as what Mr. Loeser --
23 Counsel Loeser?

24 MR. LOESER: Whitelisting is providing --
25 Mr. Cross has defined it as providing access to 08:14:33

HIGHLY CONFIDENTIAL

1 nonpublic APIs and private APIs, so... 08:14:35

2 I mean, I -- that's what I'm asking
3 about. And --

4 SPECIAL MASTER GARRIE: I get it. I
5 agree. So that's fine. We'll move along. I think 08:14:45
6 that makes sense.

7 Counsel Schwing, we'll move it along. I
8 agree. But I do think that there is a pretty wide
9 birth under 7A for as long as it stays focused on
10 the whitelisting topic. And I think it's within 08:15:01
11 the scope of, while narrow is very specific in --
12 in its application.

13 Any last comments, Counsel Schwing or...

14 MR. SCHWING: Yeah, I mean, I think all
15 of 7 kind of ties back to the beginning of it which 08:15:24
16 is the decision to whitelist particular apps or
17 partners and how Facebook determined which entities
18 to whitelist. You know, the issues about exceeding
19 the use case. I mean, there's a whole -- there was
20 a whole separate deposition about that. 08:15:41

21 SPECIAL MASTER GARRIE: Yeah.

22 MR. SCHWING: And so look, I think we can
23 move along. I just -- to the extent that they're
24 repeated questions about, you know, that he's --

25 SPECIAL MASTER GARRIE: Let me put it to 08:15:51

Page 1163

HIGHLY CONFIDENTIAL

1 you differently. I agree with Counsel Schwing in 08:15:52
2 the fact that when you ask a question
3 Counsel Loeser, and he says "I'm not here to
4 testify about it." And then he says it again "I'm
5 not here to testify about it." 08:16:00

6 That should be sufficient for you to move
7 onto another question and keep it moving forward,
8 generally speaking. Or you can make a motion or
9 Rule 30 motion and we go and excuse the witness and
10 discuss it future. But I don't think asking the 08:16:15
11 witness the same thing will prove to be effective.

12 MR. LOESER: Yeah, that -- that's fine.
13 I mean, you know, typically a scope objection is
14 made, 30(b)(6) witnesses testify all the time.
15 There's always a fight about whether it's in scope 08:16:29
16 or out of scope and if they provide what becomes
17 personal testimony there's nothing. That's just
18 how it -- how it works.

19 I'd also just note just so it's clear, I
20 think Mr. Schwing and I have a slightly different 08:16:39
21 understanding of how a notice operates under
22 30(b)(6). The law is quite clear that it sets the
23 minimum not the maximum of what you can ask about.

24 SPECIAL MASTER GARRIE: I'm -- I'm not --
25 I'm not talking about scope. I'm talking about 08:16:49

Page 1164

HIGHLY CONFIDENTIAL

1 form. 08:16:51

2 What I'm saying is, if you want to ask in
3 your personal capacity or in your non30(b)(6)
4 capacity to get -- he said, "I'm not here to
5 testify in my" -- as -- "as a representative of 08:17:00
6 Facebook to answer this question."

7 You said, "Will you answer this
8 question."

9 And then he said, "Do you mean in my
10 personal capacity?" 08:17:09

11 And your response was "Just answer the
12 question."

13 So if you want him to answer the question
14 in his personal capacity, he will. But he will not
15 answer -- and that resulted in a circular set of 08:17:19
16 questions where you asked him again the exact same
17 question and ended up at the exact same point.

18 So you would need to offer that
19 clarification because he has answered the question
20 as he understood it, which was you are asking him 08:17:30
21 in his professional 30(b)(6) capacity. Which is
22 why he answered it accordingly. Whether you agree
23 or not, that was the answer provided. We went in a
24 circle and got back to the same point.

25 MR. LOESER: Yeah, well, fortunately I 08:17:44

Page 1165

HIGHLY CONFIDENTIAL

1 don't have any more questions on that. And I do 08:17:44

2 have questions on whitelisting and use cases --

3 SPECIAL MASTER GARRIE: That's fine.

4 Let's get it on the road. Show on the road.

5 MR. LOESER: I think Austin and I have a 08:17:53

6 common and -- and clear desire to make this

7 deposition over with. So --

8 MR. SCHWING: This is --

9 SPECIAL MASTER GARRIE: Let's be clear

10 I -- I'm not opining with the minimum or maximum. 08:18:01

11 I am opining, though, with the format -- the form

12 of how it goes. So we'll get the witness back.

13 But just keep that in the back of your mind,

14 Counsel Loeser --

15 MR. LOESER: Sure. 08:18:13

16 SPECIAL MASTER GARRIE: -- that if it

17 happens again I'll cut it off, and I'll just tell

18 you to ask the next question. Or you can tell him

19 in your personally capacity. Because you have to

20 explain to the witness the question you're asking 08:18:20

21 so he can then answer the question. He couldn't

22 answer the question because he didn't understand

23 how you were asking him.

24 MR. LOESER: Understood.

25 SPECIAL MASTER GARRIE: Okay. 08:18:30

Page 1166

HIGHLY CONFIDENTIAL

1 MR. SCHWING: I'll go get Mr. Cross here 08:18:31
2 and we'll get back. Yeah. I mean, look, I want to
3 get done too. This is, you know, nobody wants to
4 prolong this. So okay. Let me -- I need to go
5 tell my housekeeper to stop vacuuming, and then I 08:18:40
6 will be right back.

7 SPECIAL MASTER GARRIE: Okay.

8 THE VIDEOGRAPHER: Go off the record?

9 SPECIAL MASTER GARRIE: Go off the record
10 for two minutes I guess. 08:18:53

11 THE VIDEOGRAPHER: Okay. We're off the
12 record. It's 8:18 p.m.

13 (Recess taken.)

14 THE VIDEOGRAPHER: We're back on the
15 record. It's 8:23 p.m. 08:23:24

16 Q. (By Mr. Loeser) Mr. Cross, what
17 examination has Facebook done to determine whether
18 apps whitelisted for access to APIs that emit
19 friend data exceeded the use case for the apps
20 after 2014? 08:23:38

21 MR. SCHWING: Object to form.

22 THE DEPONENT: My understanding is that
23 the partnerships team reviewed the applications
24 and -- and either removed access to private APIs
25 and whitelists or determined that the -- the 08:24:06

Page 1167

HIGHLY CONFIDENTIAL

1 application had the appropriate level of access. 08:24:10

2 Q. (By Mr. Loeser) And when did that occur?

3 A. It was a process in 2018 and early 2019

4 to assess apps that had been granted additional

5 access to information and -- and determine whether 08:24:36

6 or not that access should continue.

7 Q. And did that same investigation also

8 examine whether partners with private APIs that had

9 access to friend data that exceeded the -- the

10 permissions for that data? 08:24:54

11 A. Sorry.

12 Q. Let me ask that again.

13 You asked the question with regard to

14 apps with access to APIs emit friend data. And

15 does the same investigation you describe did that 08:25:07

16 also investigate private APIs access to friend data

17 for specific partners?

18 MR. SCHWING: Object to form.

19 THE DEPONENT: My understanding is that

20 an exercise in 2018 looked at apps that had been 08:25:30

21 whitelisted for additional access to -- to

22 information and determined whether or not the

23 access should -- should continue.

24 Q. (By Mr. Loeser) Has Facebook undertaken

25 any backward looking assessment of how third 08:25:43

Page 1168

HIGHLY CONFIDENTIAL

1 parties with access to friend data after 2014 used 08:25:47

2 that data?

3 A. Friend data after 2014? Sorry, do you

4 mean after -- like the deprecation of API -- public

5 deprecation of API version 1 or what -- 08:26:11

6 Q. Yeah.

7 A. -- in 2014.

8 Q. Yes, that transmission is the new

9 platform and you -- I'm wondering if Facebook has

10 looked at -- well, let me give you an example. 08:26:19

11 Has Facebook evaluated whether Apple

12 shared friend data it received after 2015 with

13 additional third parties?

14 MR. SCHWING: Object to form.

15 THE DEPONENT: I -- I don't know whether 08:26:40

16 or not Facebook has investigated one particular --

17 that particular application that you're -- or that

18 particular partner that you're referencing there.

19 Q. (By Mr. Loeser) Mr. Cross, topic --

20 topic 7B asks for "the most efficient way to 08:27:17

21 establish payments, revenues, exchanged value

22 actual or promised, that Facebook received for" --

23 "for permitting whitelisting capabilities."

24 And in your preparations for your

25 testimony for this -- on this topic, did you 08:27:54

Page 1169

HIGHLY CONFIDENTIAL

1 investigate that question? 08:27:59

2 A. I spoke to a number of people involved in
3 the API changes and in around 2014 and '15 to
4 understand their understanding of how decisions
5 were made. 08:28:26

6 Q. And specifically with regard to payments,
7 revenues, exchanged value actual or promised, who
8 did you talk to to drill down on whether any such
9 payments, revenues, exchanged value actual or
10 promised were provided to Facebook for permitting 08:28:44
11 whitelisting?

12 A. I spoke to Ime Archibong. I spoke to
13 Francisco Varela, and those are the two names off
14 the top of my head. I spoke to a number of people
15 involved in this -- in preparation for today. 08:29:08

16 Q. Did you speak to anyone who worked on
17 the -- in an advertising department at Facebook?

18 A. Did I speak to anyone in advertising
19 department.

20 Q. Or more broadly, anyone that -- that was 08:29:30
21 involved in the business of advertising on the
22 Facebook platform?

23 A. I spoke with Vatsal Mehta. Who's
24 involved in -- in that side of the company as I
25 understand it. 08:29:49

Page 1170

HIGHLY CONFIDENTIAL

1 Q. Okay. And what -- what did -- is that 08:29:49
2 a -- what was that person's name, I'm sorry?
3 A. Vatsal Mehta.
4 Q. Could you spell the first name.
5 A. V-A-T-S-A-L. The surname is Mehta. 08:30:07
6 M-H-E-T-A [sic] I think.
7 Q. And what did you learn from Mr. Mehta?
8 A. He was not able to identify for me
9 examples of how Facebook received payments for
10 whitelisting. 08:30:34
11 Q. Now, the next paragraph clause in the
12 notice says "and the revenues and net profits
13 Facebook recognized related to whitelisting through
14 the class period."
15 Did you investigate anything of value 08:30:54
16 received by Facebook that related to whitelisting?
17 MR. SCHWING: Outside the topic.
18 THE DEPONENT: Again, I spoke to a number
19 of people who were involved in whitelisting and
20 partnerships to understand if they had any 08:31:19
21 understanding of value received or payments made.
22 MR. LOESER: All right. If we can put up
23 Exhibit 339.
24 Q. (By Mr. Loeser) Mr. Cross, I'm showing
25 you what was previously marked as Exhibit 339. 08:32:03

Page 1171

HIGHLY CONFIDENTIAL

1 Which was the PowerPoint prepared by Monica Mosseri 08:32:04
2 that goes through "Criteria for granting Exemptions
3 and Extensions."

4 Do you recall this exhibit?

5 A. Yes, I recall this -- us reviewing this 08:32:16
6 before.

7 Q. And do you recall that the PowerPoint
8 goes through what Facebook had to lose in the
9 transition to the new platform from the partners?

10 MR. SCHWING: Object to form. 08:32:40

11 THE DEPONENT: Before I answer can I take
12 a moment to -- to look through and refamiliarize
13 myself with the -- with the document.

14 Q. (By Mr. Loeser) You can, but I don't
15 have substantive questions about the document. I'm 08:32:49
16 not going to go back over it. I want to ask you
17 more what you have done to investigate the topics
18 identified in the document.

19 But please if you want, take your time.

20 A. Okay. I've had a quick -- quick slice 08:33:18
21 through. Thank you.

22 Q. So you recall in this PowerPoint there
23 was an evaluation of what Facebook had to lose if
24 partners stopped using the Facebook platform
25 because of the deprecation of permissions. 08:33:30

Page 1172

HIGHLY CONFIDENTIAL

1 MR. SCHWING: Object to form. 08:33:33

2 THE DEPONENT: Sorry, another reminder
3 this is a -- my understanding is that this is a
4 draft deck. It says that on the first page. It --
5 it's worth noting. 08:33:47

6 So what was the question you have,
7 Mr. Loeser.

8 Q. (By Mr. Loeser) I was just asking you if
9 you recalled what the subject matter is of the
10 PowerPoint was, having reviewed it yet? 08:33:58

11 A. My understanding is that this is a -- a
12 draft deck by someone in the partnership --
13 partnerships team looking into potential ways to
14 think about whether or not certain apps should be
15 granted exemptions or extensions. 08:34:22

16 Q. And did you search for other versions of
17 this PowerPoint to prepare for your testimony
18 today?

19 MR. SCHWING: Object to form.

20 THE DEPONENT: I didn't search for other 08:34:37
21 versions of this -- of this PowerPoint, no.

22 Q. (By Mr. Loeser) Did you talk to -- try
23 and talk to Ms. Mosseri?

24 A. I did not try and talk with Ms. Mosseri
25 because my understanding is she's no longer an 08:35:02

Page 1173

HIGHLY CONFIDENTIAL

1 employee of Facebook. 08:35:06

2 Q. And that's why you didn't talk to her?

3 A. My understanding is that yes, because she

4 is not employed at Facebook and it's not

5 appropriate to reach out to her. 08:35:20

6 Q. Did you talk to or seek to find out if

7 anyone else received this PowerPoint who still

8 works at Facebook?

9 A. I didn't, like, try and understand who

10 else might have received this PowerPoint. However, 08:35:44

11 I have spoken to Mr. Archibong who likely may have

12 received this -- this PowerPoint at some time.

13 Q. And did you talk to him about this

14 PowerPoint?

15 A. I talked to him about the -- his 08:36:04

16 understanding of how valuations were -- were made

17 about apps to whitelisting.

18 Q. But did you talk to him specifically

19 about this PowerPoint?

20 A. I don't recall showing this PowerPoint to 08:36:21

21 Mr. Archibong, but we talked in general about the

22 topics contained within.

23 Q. Did you talk to him about what Facebook

24 had to lose if certain partners stopped using the

25 Facebook platform? 08:36:36

Page 1174

HIGHLY CONFIDENTIAL

1 MR. SCHWING: Object to form. 08:36:40

2 THE DEPONENT: We discussed whether or
3 not, what the potential implications of the changes
4 might be and how Facebook -- how he and his
5 partnerships team thought about those potential 08:36:56
6 changes.

7 Q. (By Mr. Loeser) That's not quite what I
8 asked you. So I will -- if you can answer the
9 question I had asked I would appreciate it. Which
10 if I could get this computer to work I read back to 08:37:13
11 you.

12 MR. SCHWING: The court reporter could --

13 MR. LOESER: Yeah, I have it now. I'm
14 sorry, Austin. I didn't mean to interrupt you.

15 MR. SCHWING: Yeah, if -- if you could 08:37:25
16 read it again that would be wonderful, thank you.

17 Q. (By Mr. Loeser) Did you talk to
18 Mr. Archibong about what Facebook had to lose if
19 certain partners stopped using the Facebook
20 platform? 08:37:38

21 MR. SCHWING: Object to form.

22 THE DEPONENT: We talked about -- me and
23 Mr. Archibong talked about the potential
24 implications for the developing ecosystem from
25 these changes that were proposed at the time. 08:37:54

Page 1175

HIGHLY CONFIDENTIAL

1 Q. (By Mr. Loeser) And Mr. Cross, did that 08:37:57
2 include what Facebook had to lose if certain
3 partners stopped using the platform?

4 MR. SCHWING: Object to form.

5 THE DEPONENT: We talked about the 08:38:11
6 potential impact to developers and -- and the
7 developer ecosystem which would be an impact on --
8 on Facebook.

9 Q. (By Mr. Loeser) Mr. Cross, I'm just
10 trying to get a straightforward yes-or-no answer to 08:38:26
11 a straightforward question.

12 So I'll ask again. And if you could just
13 answer, we can move on to the next question.

14 Do you need me to read back the question
15 again? 08:38:41

16 A. So we talked about the -- you're using a
17 phrase that -- "what do we have to lose." Do I
18 recall using that specific phrase with
19 Mr. Archibong, I don't recall using that specific
20 phrase in that conversation with him. 08:38:53

21 But I do recall we talked about his
22 understanding of the discussions at the time as to
23 the impact on Facebook and third-party developers
24 of the changes, which would encompass things that
25 the company might have to deal with and the value 08:39:16

Page 1176

HIGHLY CONFIDENTIAL

1 that the company might lose. 08:39:22

2 Q. And, again, so the record is clear, you
3 did not talk to him specifically about this
4 PowerPoint, correct?

5 A. I did not talk to Mr. Archibong 08:39:30
6 specifically about this PowerPoint. But we -- we
7 talked about the general topics contained within
8 which was important for me to help prepare myself
9 for -- for today's testimony.

10 Q. Now for a PowerPoint -- for a PowerPoint 08:39:43
11 like this, would that have been a formal task or
12 Quip generated in connection with the project?

13 MR. SCHWING: Object to form. Outside
14 the scope.

15 THE DEPONENT: Yeah, I can't say exactly 08:39:58
16 what the -- the partnerships team would have
17 operated at this time and whether or not they'd
18 have other documentation. Typically somebody
19 would -- would be asked to work on something and
20 work on it. I'm not able to say whether or not in 08:40:18
21 this case there were other tasks and documents.

22 Q. (By Mr. Loeser) Did you search for a
23 formal task generated in connection with this
24 project?

25 A. I did not search for a task in 08:40:39

Page 1177

HIGHLY CONFIDENTIAL

1 relationship to this specific deck. 08:40:41

2 Q. How about a Quip?

3 A. I did not search for a Quip relating to
4 this specific deck either.

5 Q. And were you able to determine what, if 08:40:57
6 anything, was done with this evaluation that's
7 contained in this PowerPoint by Facebook?

8 MR. SCHWING: Object to form.

9 THE DEPONENT: In talking to the -- to
10 the people involved, my understanding is that 08:41:16
11 this -- this PowerPoint does not -- was -- did not
12 go on to be used to determine which apps should or
13 should not be whitelisted.

14 Q. (By Mr. Loeser) And yet you didn't talk
15 about the PowerPoint specifically with anyone that 08:41:33
16 you talked to to prepare for your testimony, right?

17 MR. SCHWING: Object to form.

18 THE DEPONENT: I spoke to Mr. Archibong
19 about his recollection around the time and how
20 decisions were made, and he does not recall a 08:41:52
21 formal framework being used ultimately to make --
22 make decisions.

23 Q. (By Mr. Loeser) You didn't say
24 Mr. Archibong, have you seen this PowerPoint
25 before, right? 08:42:08

Page 1178

HIGHLY CONFIDENTIAL

1 MR. SCHWING: Asked and answered. 08:42:15

2 THE DEPONENT: As I said, I did not show
3 this PowerPoint to -- to Mr. Archibong.

4 Q. (By Mr. Loeser) You didn't say
5 Mr. Archibong, what do you think about the analysis 08:42:22
6 that's contained in the PowerPoint, right?

7 A. Me and Mr. Archibong talked about how,
8 his recollection of how decisions were made and
9 ultimately what considers -- and what factors and
10 considerations were -- were included. I -- I did 08:42:45
11 not specifically show him this PowerPoint.

12 Q. Mr. Cross, isn't it a fact that Facebook
13 treated certain developers specially based on their
14 value to Facebook and ad spend?

15 MR. SCHWING: Object to form. 08:43:07

16 THE DEPONENT: It's true that Facebook
17 whitelisted certain apps for having access to
18 additional information. But I'm -- I'm not aware
19 of -- in terms of the friends' information whether
20 or not that was in any way related to -- to 08:43:34
21 ad spend.

22 Q. (By Mr. Loeser) And so you don't know
23 one way or the other?

24 MR. SCHWING: Object to form.

25 THE DEPONENT: Sorry, I'm not sure I 08:43:46

Page 1179

HIGHLY CONFIDENTIAL

1 understand. 08:43:48

2 Q. (By Mr. Loeser) So you don't know if, in
3 fact, certain developers were treated specially
4 based on their value to Facebook and ad spend,
5 right? 08:43:59

6 MR. SCHWING: Object to form.

7 THE DEPONENT: Are you talking to the
8 people involved in terms of apps that were
9 whitelisted for extensions or exemptions to API
10 version 1, there was -- from the people I've spoken 08:44:15
11 to, there is nothing about their impact on ad spend
12 that was involved in the decision to whitelist
13 them.

14 Q. (By Mr. Loeser) And is that a question
15 that you asked? 08:44:34

16 A. Yes, I asked people whether or not they
17 recall revenue being involved in the ultimate
18 decision to whitelist apps for access to friend
19 data, and I was not able -- everybody suggested to
20 me that -- that I spoke to that that was not the 08:44:56
21 case.

22 Q. And the people that you spoke to are
23 Ime Archibong and who else?

24 A. I spoke to Ime Archibong. I spoke to
25 Francisco Varela, and a number of other people 08:45:20

Page 1180

HIGHLY CONFIDENTIAL

1 whose -- whose names in relation to this, I can't 08:45:26
2 recall right now.

3 Q. And did you ask them if ad spend was
4 taken into the account in the decision to whitelist
5 any partners? 08:45:35

6 A. Yes, my understanding is that from --
7 from the people I spoke to, ad spend was -- was not
8 taken into account in a decision to whitelist
9 anyone for an extension to -- or exemption from
10 the -- the changes in API version 1 to 2 with 08:45:56
11 respect to friends data.

12 Q. And who specifically told you ad spend
13 wasn't taken into account?

14 A. Mr. Archibong talked to me about ad spend
15 not being a deciding factor. I'm sorry, he was one 08:46:17
16 of people who said that.

17 Q. And you said "deciding factor."
18 Does that mean the same thing to you as
19 taken into account?

20 A. Yes, that would mean the same thing to me 08:46:34
21 as taken into account in terms of the ultimate
22 decision to grant access.

23 Q. And have you examined the number of
24 whitelisting partners that had significant ad spend
25 on the Facebook platform? 08:46:52

Page 1181

HIGHLY CONFIDENTIAL

1 MR. SCHWING: Object to form. 08:46:55

2 THE DEPONENT: I'm not sure what you mean
3 by partners who have significant ad spend on the
4 Facebook platform.

5 Q. (By Mr. Loeser) Okay. How would you 08:47:08
6 describe partners paying money to Facebook for
7 advertising on the platform?

8 MR. SCHWING: Object to form.

9 THE DEPONENT: So companies often buy ads
10 with Facebook, and that's handled by the -- the 08:47:28
11 advertising arm of the business. So I think that's
12 what we mean...

13 Q. (By Mr. Loeser) Okay. And has Facebook
14 examined the number of whitelisted partners that
15 paid money to Facebook for advertising on the 08:47:45
16 Facebook platform?

17 MR. SCHWING: Object to form.

18 THE DEPONENT: I mean, many organizations
19 spend -- spend money with Facebook on -- in some
20 way. So I'm kind of -- I'm not entirely sure how 08:48:04
21 to answer the question.

22 Q. (By Mr. Loeser) Well, let me ask it
23 again. And I -- it's -- I'm trying to ask you a
24 very straightforward simple question, which is just
25 if Facebook has examined the number of whitelisted 08:48:13

Page 1182

HIGHLY CONFIDENTIAL

1 partners that paid money to Facebook to advertise 08:48:20
2 on the Facebook platform, is that an examination
3 that Facebook has conducted?

4 MR. SCHWING: Vague.

5 THE DEPONENT: I'm not aware of -- of a 08:48:35
6 specific evaluation that was done with respect to
7 whitelisting parties and ad spend.

8 Q. (By Mr. Loeser) Is that an evaluation
9 that Facebook is capability of doing?

10 MR. SCHWING: Object to form. Outside 08:48:56
11 the scope.

12 THE DEPONENT: I don't know exactly how
13 our -- our advertising systems work. I -- I'm not
14 sure -- I wouldn't be able to confirm if that's
15 something Facebook would be able to do. 08:49:10

16 Q. (By Mr. Loeser) Who would you ask to
17 find out if that's an analysis that Facebook was
18 capable of doing?

19 A. Again, I'm not entirely clear on the --
20 the analysis that -- that was suggesting could be 08:49:36
21 done. So it's hard for me to suggest what I would
22 do next. This is relatively vague in terms of,
23 like, the time and objectives that we were
24 suggesting.

25 Q. Does Facebook keep track of the amount of 08:50:03

HIGHLY CONFIDENTIAL

1 money that its partners pay to Facebook? 08:50:05

2 MR. SCHWING: Outside of the scope.

3 THE DEPONENT: Can you help me understand
4 by what you mean by "partners and pay," in what
5 context? 08:50:23

6 Q. (By Mr. Loeser) In the context of the
7 conversation we're having about whitelisted
8 partners. And, again, I'm just trying to sort out
9 what Facebook is capable of identifying.

10 So tell me if I'm wrong. Facebook keeps 08:50:34
11 track of money received from any partners,
12 including its whitelisted partners, right?

13 A. Again, Facebook keeps -- Facebook will
14 track revenue spent on ads by -- by corporations
15 and companies and -- and entities. So that's part 08:50:57
16 of the standards -- Facebook's standards --
17 standard business practices for running an ad
18 system.

19 By "partners," I assume you mean entities
20 that Facebook worked with as part of the Facebook 08:51:14
21 developer platform. And so if -- if that's what
22 you mean -- well, first of all is that what you
23 mean?

24 Q. Here's what I mean. Facebook has
25 identified all of the apps and partners that it 08:51:30

Page 1184

HIGHLY CONFIDENTIAL

1 whitelisted for access to friend data, right. We 08:51:34
2 went through that the other day.

3 A. Yes, Facebook has -- has enacted an
4 exhaustive effort to identify apps and partners
5 that were whitelisted for access to friend data. 08:51:47

6 Q. So what would Facebook need to do to also
7 identify for those very same entities the revenue
8 spent on ads on the Facebook platform?

9 MR. SCHWING: Outside the scope. Object
10 to form. 08:52:04

11 THE DEPONENT: Again, in that context,
12 it's hard for me to know exactly what -- what
13 Facebook would do. Apart from the -- but the
14 conversation with the -- between the -- the teams
15 that run the Facebook advertising business and the 08:52:25
16 teams that maintain the Facebook developer
17 platform.

18 Q. (By Mr. Loeser) Before 2018, did
19 Facebook have a comprehensive list of all app
20 capability pairs that it had granted? 08:52:40

21 A. Yes, my understanding is that Facebook
22 had a -- a comprehensive list of all capability app
23 pairs that had been granted.

24 Q. And how was that maintained before 2018?

25 A. That was maintained through the 08:53:03

HIGHLY CONFIDENTIAL

1 capabilities tool. 08:53:05

2 Q. And before 2018, did Facebook
3 systematically track which capabilities emitted
4 user data and which third parties had access to
5 that data? 08:53:17

6 MR. SCHWING: Compound.

7 THE DEPONENT: The capabilities tool did
8 not have a determination at the time as to whether
9 or not the capability exposed additional user data.

10 Q. (By Mr. Loeser) And when you say "at 08:53:39
11 that time," what was the time -- you're saying
12 prior to 2018 the capability tool didn't have that
13 information; is that right?

14 MR. SCHWING: Vague.

15 THE DEPONENT: I think -- sorry, Austin. 08:53:52

16 MR. SCHWING: I said objection. Vague.

17 Go ahead and answer, if you're able to.

18 THE DEPONENT: Prior to I think 2018 when
19 that specific field was introduced into the
20 capability tool, there was not a systemic way to 08:54:10
21 identify which capabilities had emitted additional
22 use data.

23 Q. (By Mr. Loeser) Before 2018 did Facebook
24 have a formalized process for requirements for
25 determining which third parties would receive 08:54:29

Page 1186

HIGHLY CONFIDENTIAL

1 certain capabilities? 08:54:32

2 A. There was a process by which a capability
3 would be granted to an application which was
4 standard at the time.

5 Q. And what was that process? 08:54:53

6 A. A Facebook employee would request that
7 the capability be added to the app, and then
8 another Facebook employee typically would approve
9 that request.

10 Q. And this was -- was this a written 08:55:09
11 process, a formal process?

12 A. That mechanism was -- was instituted by
13 the way the capability tool worked. I wouldn't say
14 it was a written process.

15 Q. And when you say "an employee would 08:55:28
16 request, an employee would grant."

17 What category of employee could request
18 and what category of employee could grant?

19 MR. SCHWING: Object to form.

20 THE DEPONENT: My understanding at the 08:55:45
21 time, is technically any employee could request a
22 capability be added to an app. And then a limited
23 number of people had the ability to -- to approve
24 that request.

25 Q. (By Mr. Loeser) And who were the limited 08:56:01

Page 1187

HIGHLY CONFIDENTIAL

1 people who could approve the request? 08:56:02

2 A. I'm not sure which people at which times
3 had -- had that -- had those -- had that power.

4 Q. What were their positions?

5 A. Again, the -- the positions of the people 08:56:25
6 in terms of their job titles would have varied
7 depending on which specific people had that -- had
8 that ability at the time. So it's hard for me to
9 say.

10 Q. And when a -- when a certain capability 08:56:42
11 was made available, was there a written report or
12 record of the reason why the capability was made
13 available?

14 A. The capability tool includes a
15 description of -- of most capabilities which 08:57:08
16 explained ahead of what that capability did.

17 Q. And when did it -- when did the tool
18 start including that description?

19 A. The description field as I understand it
20 was -- was there from the inception of the tool, 08:57:29
21 but not every capability would have -- would have
22 had a -- necessarily had a written description for.

23 Q. Previously you indicated you were not
24 prepared to testify on when, if ever, Facebook
25 deprecated all APIs that emit friend data. 08:57:51

Page 1188

HIGHLY CONFIDENTIAL

1 Do you remember that testimony? 08:57:55

2 MR. SCHWING: Object to form.

3 THE DEPONENT: I don't recall
4 specifically saying that, I'm afraid. But...

5 Q. (By Mr. Loeser) Can you testify as to 08:58:12
6 when, if ever, Facebook deprecated all APIs that
7 emit friend data?

8 A. I can talk through the processes that
9 Facebook has gone through since 2018 to
10 dramatically limit the amount of information made 08:58:32
11 available to third-party apps.

12 Q. And you've done that. And my question is
13 a little different than that.

14 And, again, I -- I'm asking you again
15 because of some correspondence with your counsel 08:58:48
16 which seems to suggest that this is a question that
17 you can answer, or that it would be difficult to
18 answer, or that you might be able to answer, I just
19 want to drill down and figure out if you can -- if
20 you can answer it or not. 08:58:59

21 Can you identify when, if ever, Facebook
22 deprecated all APIs that emit friend data?

23 MR. SCHWING: Object to form.

24 Go ahead, Mr. Cross.

25 THE DEPONENT: Yes, I have -- speaking to 08:59:14

Page 1189

HIGHLY CONFIDENTIAL

1 people involved I've identified the -- the APIs 08:59:16
2 that emit friend data, and I understand when they
3 were deprecated and when third-party apps were
4 removed from the whitelists relating to those APIs.

5 Q. (By Mr. Loeser) Okay. And has -- we 08:59:37
6 talked about a number of APIs that you had
7 previously indicated continue to emit friend data
8 after 2018. And can you -- can you tell me as to
9 those APIs, has Facebook, in fact, deprecated them
10 at this point so that they no longer emit friend 08:59:52
11 data?

12 A. Yes, I can. So the -- the first master
13 in here is in April 2018, when the friend
14 permissions were deprecated and removed, such that
15 they had no effect for any app regardless of any 09:00:12
16 whitelist they were on. And so that happened the
17 last day that -- those permissions had any effect
18 was the -- was the 28th of March 2018.

19 Q. Okay. And what about the other APIs that
20 we talked about that -- that also emit friend data. 09:00:34

21 Do you remember what those were?

22 A. I can give some examples of -- of APIs I
23 think are pertinent here. So the two others that
24 we talked about previously were the invitable and
25 tagable friends APIs. Those were changed on the -- 09:00:51

HIGHLY CONFIDENTIAL

1 the 4th of April 2018 at -- such that regardless 09:00:57
2 of -- of any whitelist as I understand it, those
3 APIs would return no information.

4 MR. SCHWING: Sorry, Mr. Loeser you're on
5 mute. 09:01:32

6 MR. LOESER: Sorry.

7 Q. (By Mr. Loeser) You identified inevitable
8 friends and tagable friends, and we -- we talked
9 about a number of other APIs that you also
10 testified emit friend data, including events and 09:01:39
11 groups and user posts, user photos and so on.

12 As to all those other APIs that you
13 previously identified, has Facebook deprecated all
14 of them as well at this point?

15 A. Yes, my understanding is that the -- the 09:01:59
16 ability for an app to read likes and comments by
17 friends on a users own photos is also no longer
18 available.

19 Q. And when was that deprecated?

20 A. At the -- the -- the deprecation took 09:02:25
21 place on the -- the 4th of April as I understand it
22 2018.

23 Q. Okay. And the other APIs that you talked
24 about?

25 A. So the groups API was updated in -- later 09:02:42

Page 1191

HIGHLY CONFIDENTIAL

1 in 2018. Particularly on the 1st of May, such that 09:02:47
2 a new permission was required for apps to access
3 the profile information of somebody who had posted
4 in a group and, that change rolled out soon after
5 that. 09:03:13

6 Q. And when you say the "1st of May" of what
7 year?

8 A. Oh, sorry, my understanding is that
9 permission was announced and those changes made on
10 the 1st of May 2018. 09:03:23

11 Q. And how about private API capabilities
12 that emit friend data, have those all now been
13 deprecated?

14 A. So the first thing to say is the -- the
15 change to the friend permissions on the 28th of 09:03:44
16 March 2018 would have effected all apps regardless
17 of white- -- whitelisting specifically with regard
18 to the friend permissions. So the friend
19 permissions private or public had no effect for any
20 app after the 28th of March 2018. 09:04:05

21 Q. Okay. And is there any other way other
22 than friend permissions that private API
23 capabilities would emit friend data?

24 A. So one other way is access to the
25 newsfeed API, which we talked about previously, 09:04:23

Page 1192

HIGHLY CONFIDENTIAL

1 read stream. My understanding is that the -- the 09:04:26
2 final app was removed, the final third-party app
3 was removed from that whitelist in January 2020.

4 Q. And when you say "the final app in
5 January 2020," what was the final app, do you know? 09:04:50

6 A. My understanding is the last app to be
7 removed was Tobii, T-O-B-I-I, which was an
8 accessibility app for people with ALS.

9 Q. And how about between March of 2018 and
10 January 2020, how many apps or partners continued 09:05:06
11 to have access to those capabilities during that
12 timeframe, do you know that?

13 A. The process to wind down partner
14 integrations began in April 2018 and continued over
15 2018 and early 2019. Exactly I can't remember the 09:05:29
16 exact numbers of -- of which apps were -- were
17 included. But my understanding is that that
18 program or the whitelisting program was wound down
19 probably by the end of 2018.

20 Q. And, Mr. Cross, are there any other ways 09:05:53
21 that friend data is emitted by Facebook other than
22 those that you've described that are ongoing?

23 A. The answer to that question is -- is a
24 little complicated depending on the precise --
25 precise definition of -- of friend data. 09:06:14

Page 1193

HIGHLY CONFIDENTIAL

1 And so -- so that makes it hard to answer 09:06:17
2 your question in -- in the affirmative.

3 Q. Okay. Well, what are the ways in which
4 friend data is still emitted? And if to answer
5 that question you have to explain what friend data 09:06:38
6 means in that context, please do so.

7 A. So using the definition of -- of friend
8 data which is information -- somebody else's
9 information which a user emits or could emit to a
10 third-party application by nature of them being a 09:07:01
11 friend, my understanding is that Facebook has
12 removed all the ways in which a users friends data
13 would be emitted to a third-party app to the nature
14 of them being a friend.

15 Q. Okay. And you said that your answer 09:07:25
16 "depended on how you define friend data."

17 So is there another definition of friend
18 data that you have in mind which if applied would
19 lead you to testify that friend data continues to
20 be emitted now? 09:07:40

21 A. Again, it's -- it depends what you mean
22 by what's meant by friend data. What I'm referring
23 to here is information that's posted or entered by
24 a users friend, which would be emitted by the
25 nature of them being a friend to a third party. 09:08:08

Page 1194

HIGHLY CONFIDENTIAL

1 Q. And, again, I'm just trying to understand 09:08:20
2 your earlier testimony.

3 So is there some other type of friend
4 data that continues to be emitted today?

5 A. For example, if I managed a page and I 09:08:37
6 had an app managing my page, and one of my friends
7 posted publicly on that page, it's possible that an
8 app would have access to that public content.

9 So that's the example of -- of
10 information that's about a friend which might be 09:09:03
11 emitted.

12 Q. Can you think of any other examples?

13 A. That's really the -- the example I can
14 think of.

15 Q. Mr. Cross, I asked you previously about 09:09:22
16 the factors that led Facebook to deprecate APIs
17 that emit friend data after the Cambridge Analytica
18 scandal, and you were not prepared at the time to
19 testify; however, I understand that you are now
20 able to testify to that. If I -- if I understand 09:09:36
21 that correctly, could answer that question?

22 MR. SCHWING: Object to the form of the
23 question.

24 Derek, I hesitate here, but let me just
25 try to be helpful. And in the interest -- I 09:09:58

Page 1195

HIGHLY CONFIDENTIAL

1 just -- if -- if you can just ask him the question 09:10:02
2 as opposed to --
3 MR. LOESER: Sure. Sure.
4 MR. SCHWING: -- having representations
5 of counsel that's my problem with it, okay. 09:10:05
6 MR. LOESER: Yeah, and I appreciate that.
7 And I'm not trying to pick a fight with you. I was
8 just trying to make sure that --
9 MR. SCHWING: Yeah. No, I --
10 MR. LOESER: I'm not trying to ask him 09:10:14
11 questions that he's not able to answer. I'm trying
12 to --
13 MR. SCHWING: Yeah.
14 MR. LOESER: -- ask questions now which
15 he is able to answer based on our communications. 09:10:17
16 Q. (By Mr. Loeser) So let me just ask
17 again.
18 Mr. Cross, what are the factors that led
19 Facebook to deprecate APIs that emit friend data
20 after the Cambridge Analytica scandal? 09:10:28
21 A. In 2018 following the situation around
22 Cambridge Analytica, the company reevaluated its
23 API developer -- its API surface area.
24 A number of the reasons why some of those
25 partnerships had built -- had been built, for 09:10:55

Page 1196

HIGHLY CONFIDENTIAL

1 example, the device integrations. They were built 09:10:57
2 in a -- in a world where there were many more
3 mobile operating systems out there. By 2018 most
4 people were using iOS and Android.

5 And there were concerns raised around the 09:11:20
6 Cambridge Analytica situation that indicated that
7 there were concerns with how information was shared
8 with third parties. And Facebook under --
9 undertook a solid evaluation or reevaluation as to
10 whether or not those should continue. 09:11:45

11 Q. Mr. Cross, was it wrong for Facebook to
12 publicly state it was getting rid of apps ability
13 to get Facebook user data from users friends when,
14 in fact, it continued to allow a number of apps to
15 do just that? 09:12:05

16 MR. SCHWING: Lacks foundation. Vague.
17 Outside of the scope of the deposition.

18 THE DEPONENT: I'm not aware of
19 statements that were made -- statements that
20 Facebook has made to -- to that effect. 09:12:22

21 Q. (By Mr. Loeser) Respectfully, Mr. Cross,
22 that's not the question I asked you.

23 So I'll ask the question again, and if
24 you can answer the question, I would appreciate it.

25 Was it wrong for Facebook to publicly 09:12:37

Page 1197

HIGHLY CONFIDENTIAL

1 state it was getting rid of apps ability to get 09:12:39
2 Facebook user data from users friends when, in
3 fact, Facebook continued to allow a number of apps
4 to do just that?

5 MR. SCHWING: Outside of the topics of 6 09:12:53
6 and 7.

7 THE DEPONENT: Again, I'm not aware of --
8 of a statement that -- that Facebook's made to --
9 that would indicate Facebook believes that that's
10 the case. 09:13:07

11 Q. (By Mr. Loeser) Mr. Cross, I'm not
12 asking you if you're aware of the statement
13 Facebook has made. I'm asking you as Facebook's
14 corporate designee, whether it was wrong for
15 Facebook to publicly state it was getting rid of 09:13:17
16 apps ability to get Facebook user data from the
17 users friends when, in fact, Facebook continued to
18 allow a number of apps to do just that?

19 MR. SCHWING: Vague. Lacks foundation.
20 Outside the scope of the definition. 09:13:32

21 THE DEPONENT: I -- I -- I'm afraid, I
22 don't work in -- in corporate communications, and
23 so I'm not an expert in what statements Facebook
24 made or should have made around -- around this
25 time. As I said, I'm not aware of statements that 09:13:52

Page 1198

HIGHLY CONFIDENTIAL

1 Facebook has made to indicate that. 09:14:00

2 Q. (By Mr. Loeser) And, Mr. Cross, are you
3 unable to testify as Facebook's corporate designee
4 as to whether it was wrong for Facebook to state it
5 was getting rid of apps ability to get Facebook 09:14:11
6 user data from a users friends when, in fact,
7 Facebook continued to allow a number of apps to do
8 just that?

9 MR. SCHWING: Outside of the scope of
10 topics 6 and 7. And lacks foundation. 09:14:24

11 THE DEPONENT: As I said like -- I'm
12 not -- I don't feel comfortable giving an answer on
13 behalf of the company there. I've given -- I'm not
14 an expert in, or I'm not really working in
15 corporate communications or -- really have the 09:14:46
16 expertise required to -- to answer that question
17 like that, I'm afraid.

18 Q. (By Mr. Loeser) Mr. Cross, you testified
19 that one reason Facebook gave third parties access
20 to friend information after 2014 was to avoid 09:15:07
21 breaking the user experience, right?

22 MR. SCHWING: Object to form.

23 THE DEPONENT: I recall we -- we were
24 discussing the -- the reasons for giving some apps
25 additional time to migrate between API version 1 09:15:28

Page 1199

HIGHLY CONFIDENTIAL

1 and version 2. 09:15:33

2 Q. (By Mr. Loeser) So that the user
3 experience will not be broken?

4 MR. SCHWING: Object to form.

5 THE DEPONENT: My understanding is -- 09:15:39

6 sorry. My understand is that's one of the reasons
7 why Facebook allowed apps extra time to transition
8 from version 1 to version 2.

9 Q. (By Mr. Loeser) So for third parties who
10 received friend information after 2014, their user 09:15:56
11 experience was not broken, right?

12 MR. SCHWING: Object to form.

13 THE DEPONENT: So I'm not -- I'm not sure
14 I understand the question since -- can you -- I'm
15 not sure I understand the question. 09:16:13

16 Q. (By Mr. Loeser) You understand what it
17 means to break the user experience, right?

18 A. Different applications behave in
19 different ways when the API is -- is changed for
20 them. 09:16:28

21 Q. And APIs that -- that apps that depend on
22 friend information if the friend information no
23 longer is available that breaks the user
24 experience, right?

25 A. It could break the user experience. 09:16:41

Page 1200

HIGHLY CONFIDENTIAL

1 Again, the precise way in which the application was 09:16:43
2 effected would be different from application to
3 application.

4 Q. Okay. But for an app that depends upon
5 friend data, if that app was continued to 09:16:53
6 allowed -- continued to have access to friend data,
7 than the user experience would not be broken,
8 right?

9 MR. SCHWING: Object to form.

10 THE DEPONENT: Typically where an app is 09:17:08
11 built to work with a particular version of an -- or
12 a particular way an API works and then that API
13 doesn't change, then the behavior of the app also
14 would not change.

15 Q. (By Mr. Loeser) Okay. And there were 09:17:23
16 many third-party applications who before 2015
17 relied on nonapp friend information for their user
18 experience, right?

19 A. There were applications built prior --
20 prior to 2014 which reviewed friends information in 09:17:41
21 various ways.

22 Q. And not just various ways but for the
23 user experience, right?

24 A. Some apps would have used that
25 information very much in the user experience. 09:18:01

Page 1201

HIGHLY CONFIDENTIAL

1 Q. Mr. Cross, not all those third parties 09:18:04
2 received an extension or access to a private API,
3 right?

4 A. Facebook gave developers a year to
5 transition from API version 1 to version 2. 09:18:20

6 Q. Okay. And not all apps received
7 extensions beyond that time period, right?

8 A. Not all apps were -- were given
9 additional time to migrate.

10 Q. And so for those apps that relied on 09:18:36
11 friend information for the user experience that did
12 not receive an extension beyond a year, the -- the
13 user experience was broken for those apps, right?

14 MR. SCHWING: Object to form.

15 THE DEPONENT: I don't think that's an 09:18:59
16 appropriate characterization to make. Many
17 developers updated their application, such that it
18 continued to -- to operate.

19 Q. (By Mr. Loeser) But for those that
20 depended on the same nonapp friend information that 09:19:15
21 they got before the transition to the new platform,
22 the user experience was broken for those apps,
23 right?

24 MR. SCHWING: Object to form.

25 THE DEPONENT: No, I don't think that's 09:19:31

HIGHLY CONFIDENTIAL

1 an appropriate characterization to make. Apps -- 09:19:33
2 developers were in many cases up -- able to update
3 their application such that it did not rely on
4 access to that information.

5 Q. (By Mr. Loeser) So there were no apps 09:19:49
6 for which the user experience was broken as a
7 result of not providing the app with private API
8 for that information?

9 MR. SCHWING: Object to form.

10 THE DEPONENT: That's also not quite what 09:20:04
11 I said. I said that many -- many developers were
12 able to update their application. Others choose
13 to -- chose to stop offering their application.

14 And there would have been some developers who did
15 none of those things. And their application would 09:20:19
16 behave in different ways depending on exactly how
17 their application was built.

18 Q. (By Mr. Loeser) So how did Facebook
19 decide which user experiences to break and which
20 user experiences not to break when it came to 09:20:31
21 providing friend sharing extensions?

22 MR. SCHWING: Object to form.

23 THE DEPONENT: Facebook evaluated -- the
24 partnerships team at Facebook along with the -- the
25 work team, evaluated whether or not it was 09:20:51

Page 1203

HIGHLY CONFIDENTIAL

1 appropriate to grant an extension typically based 09:20:59
2 on whether or not the developer had the -- the
3 ability -- had been able to update their
4 integration in time, and whether or not more time
5 would prevent a broken user experience. 09:21:17

6 Q. (By Mr. Loeser) Mr. Cross, have you been
7 able to figure out what a "T0" partner is?

8 A. My understanding is that T0 represents a
9 categorization by the partnerships team of certain
10 partners of app developers. 09:22:02

11 Q. And, Mr. Cross, how many T0 partners were
12 whitelisted for friend data access after 2014?

13 A. I don't know exactly which apps were
14 categorized as T0 partners or -- or which of them
15 continued to have the access for -- for some period 09:22:23
16 of time.

17 Q. That's information that Facebook
18 possesses, right?

19 MR. SCHWING: Object to form.

20 THE DEPONENT: I don't know whether or 09:22:34
21 not apps categorized this -- this -- well,
22 developers categorized this -- this T0 as -- as
23 something that Facebook still has access to.

24 Q. (By Mr. Loeser) Any reason for you to
25 believe that Facebook cannot identify all of its T0 09:22:54

HIGHLY CONFIDENTIAL

1 partners from 2007 to present? 09:22:57

2 MR. SCHWING: Object to form.

3 THE DEPONENT: I'm just not sure what

4 the -- how -- how lists of what would be considered

5 T0 partners were -- were kept at various times, in 09:23:11

6 the concept of T0 is not something that's existed

7 from 2007 onwards.

8 Sorry, consistently existed from 2007

9 onwards.

10 Q. (By Mr. Loeser) Mr. Cross, does 09:23:30

11 Jackie Chang still work for Facebook?

12 A. I'm -- I think she may still work for

13 Facebook but is on maternity leave.

14 Q. And to prepare for your testimony

15 regarding friend sharing and whitelisting, did you 09:23:46

16 speak with Jackie Chang?

17 A. I did not speak with Jackie Chang. As I

18 understand she's -- she's currently on leave.

19 Q. Is that the reason why you didn't try to

20 speak with her? 09:24:02

21 A. Typically if someone is on leave, I would

22 generally like to leave them on leave.

23 Q. And do you know when she returns from

24 leave?

25 A. I -- I'm not sure when she returns from 09:24:19

Page 1205

HIGHLY CONFIDENTIAL

1 leave, I'm afraid. 09:24:22

2 MR. LOESER: Why don't we go off the
3 record.

4 THE VIDEOGRAPHER: Okay. We're off the
5 record. It's 9:24 p.m. 09:24:38

6 (Recess taken.)

7 THE VIDEOGRAPHER: We're back on the
8 record. It's 9:34 p.m.

9 EXAMINATION

10 BY MR. SCHWING: 09:34:07

11 Q. Mr. Cross, I just have a couple of
12 follow-up questions. Earlier you gave some
13 testimony regarding site bar in the gatekeeper
14 tool, and you indicated that there was some
15 migration information into the capabilities tool. 09:34:19

16 Do you remember that testimony?

17 A. Yes, I recall being asked.

18 Q. Can you explain further the migration
19 that took place then?

20 A. So my understanding is that -- between 09:34:37
21 2018 and '19 an effort was undertook to migrate any
22 site bars or gatekeepers which refied to the API
23 behavior for a given app ID, or set of app IDs was
24 migrated into the capability tool and all relevant
25 information was -- was -- was also migrated. 09:35:06

Page 1206

HIGHLY CONFIDENTIAL

1 Such that today, my understanding is the 09:35:09
2 capability tool is a complete picture of ways in
3 which apps access to information by the API has
4 not -- has been managed.

5 Q. Were third parties whitelisted for friend 09:35:43
6 information because of the revenue that they
7 deliver to Facebook?

8 A. No.

9 Q. Are third parties whitelisted for friend
10 information because of their advertising spend? 09:35:58

11 A. No.

12 MR. SCHWING: I don't have anything
13 further.

14 MR. LOESER: Brief follow up.

15 FURTHER EXAMINATION 09:36:10
16 BY MR. LOESER:

17 Q. You referred to an effort to migrate, was
18 it site bar -- what was migrated from what to what?

19 A. So the gatekeeper tool contained a number
20 of gatekeepers, which we used to modify the 09:36:32
21 behavior of the API based on an app ID, and --
22 where Facebook uncovered or identified -- sorry,
23 where Facebook identified gatekeepers that were
24 based on an app ID then that gatekeeper was
25 migrated to be a capability. 09:36:58

Page 1207

HIGHLY CONFIDENTIAL

1 Q. And what prompted that migration? 09:37:00

2 A. A desire to have a single tool to manage
3 all of the ways in which the API behavior could be
4 modified.

5 Q. Now, Mr. Cross, in response to 09:37:37

6 Mr. Schwing's question about revenue, you've
7 testified that partners were not whitelisted for
8 friend data because the revenue they deliver to
9 Facebook.

10 Is that your testimony as Facebook's 09:37:56

11 corporate designee?

12 A. My understanding from reviewing documents
13 and speaking to people, is the revenue or ad spend
14 was not a determining factor as to whether or not
15 an app was granted access to friends data. 09:38:15

16 Q. And the basis of your knowledge there,
17 that's not based on your personal knowledge is it?

18 A. I certainly have no personal knowledge
19 of -- sorry. Let me put that another way.

20 In my experiences, I'm -- I was not aware 09:38:36

21 of anytime revenue was used to make a whitelisting
22 decision with regards to friends data, and the
23 people I spoke to in -- in preparation for this
24 testimony also concurred with that view.

25 Q. And those people you spoke to are two 09:39:04

HIGHLY CONFIDENTIAL

1 individuals that you identified before Mr. Mehta 09:39:06
2 and Mr. Archibong; is that right?

3 MR. SCHWING: Misstates testimony.

4 THE DEPONENT: Those are two of the
5 people that I spoke to in preparation for today. 09:39:17

6 Q. (By Mr. Loeser) And is there anybody
7 else that told you that ad spend and revenue was
8 not taken into account by Facebook when deciding
9 which partners to whitelist?

10 A. I can't recall the names of all the other 09:39:35
11 people I spoke to in -- in preparation for this,
12 but all the people I spoke to, and of all the
13 documents I reviewed, concurs with the -- the
14 understanding that revenue was not taken into
15 account with regards to whitelisting apps to friend 09:39:58
16 information.

17 Q. Now, Mr. Cross, we went through many,
18 many documents that suggest to the contrary, didn't
19 we?

20 MR. SCHWING: Argumentative. Lacks 09:40:11
21 foundation.

22 Q. (By Mr. Loeser) Isn't that true,
23 Mr. Cross?

24 A. We've been through documents which --
25 looked to assess the potential impact of the 09:40:25

Page 1209

HIGHLY CONFIDENTIAL

1 changes. And -- and some of those documents 09:40:27
2 mentioned revenue as -- as part of the early
3 assessments.

4 But when speaking to the people that were
5 involved in native whitelisting, the revenue from 09:40:44
6 these device integration partners were, or other
7 platform partners, was not considered as part of
8 the decision to -- to grant them access.

9 Q. And so you're saying that because these
10 two individuals you talked to told you that? 09:41:07

11 MR. SCHWING: Object --

12 Q. (By Mr. Loeser) The documents certainly
13 don't tell you that, do they?

14 MR. SCHWING: Argumentative. Lacks
15 foundation. 09:41:17

16 THE DEPONENT: Speaking to people who
17 were involved in -- in the decisions as to why apps
18 ultimately were granted extensions or exemptions
19 they -- the impact on -- on revenue from not doing
20 so, was not an impact. Was not a factor in the 09:41:40
21 decision-making.

22 Q. (By Mr. Loeser) Well, did you -- did you
23 identify any internal documents at Facebook that
24 said what you just said?

25 MR. SCHWING: Object to form. 09:41:56

HIGHLY CONFIDENTIAL

1 Q. (By Mr. Loeser) Any? Did you identify a 09:42:01
2 single document that confirms what you just said?

3 MR. SCHWING: Same objection.

4 THE DEPONENT: I reviewed a number of
5 documents. I -- I don't recall a document that -- 09:42:15
6 that says exactly what I just said. Again,
7 speaking to the -- the people involved and from my
8 own experiences, involved in -- in this time in
9 terms of giving apps -- giving partners continued
10 access to -- to friend data for a period of time as 09:42:41
11 an extension or exemption, the revenue from those
12 partners was -- was not a factor in the
13 decision-making as to whether or not to grant them
14 full access.

15 Q. (By Mr. Loeser) Mr. Cross, can you 09:42:55
16 identify even one document generated internally at
17 Facebook that says that ad revenue, ad spend and
18 revenue was not taken into account when deciding
19 which partners to whitelist?

20 MR. SCHWING: Object to form. Asked and 09:43:15
21 answered.

22 THE DEPONENT: I can't identify as I sit
23 here a -- a document that --

24 SPECIAL MASTER GARRIE: Answer the
25 question. Yes or no. It is a simple question, 09:43:26

Page 1211

HIGHLY CONFIDENTIAL

1 answer it accordingly. 09:43:33

2 THE DEPONENT: As I sit here today, I
3 can't identify a document that -- that says that
4 specifically.

5 Q. (By Mr. Loeser) Now, Mr. Cross, you say 09:43:46
6 you talked to two individuals who told you that
7 revenue and ad spend was not taken into account in
8 whitelisting decisions.

9 Has it occurred to you that perhaps
10 they're not telling you the truth? 09:43:56

11 MR. SCHWING: Object to form.

12 THE DEPONENT: I suppose -- the people I
13 spoke in preparation for this deposition are people
14 that were involved over -- over a long period of
15 time in how Facebook manages its developer platform 09:44:21
16 and platform partnerships.

17 These people are knowledgeable about
18 their -- about their space and they were effusive
19 in helping me understand their view on how
20 whitelisting decisions were made. 09:44:43

21 And revenue was not considered in the
22 ultimate decision to whitelist. The documents
23 you're, I think referring to, for example,
24 Ms. Mosseri is -- is a draft document. It was
25 prepared when the company was attempting to 09:45:07

Page 1212

HIGHLY CONFIDENTIAL

1 understand the potential impact. And, you know, my 09:45:13
2 understanding is that as a result, of my
3 conversations, revenue was not a factor in deciding
4 whether or not to grant apps continued access to
5 friend data. 09:45:35

6 Q. (By Mr. Loeser) Mr. Cross, I asked you a
7 very simple and straightforward question. Would
8 you like me to read it back to you so that you can
9 answer it? I'll ask it again.

10 Mr. Cross, you say, you talked to two 09:45:47
11 individuals who told you that revenue and ad spend
12 was not taken into account in whitelisting
13 decisions.

14 Has it occurred to you that perhaps they
15 are not telling you the truth? 09:45:58

16 MR. SCHWING: The question is
17 argumentative.

18 THE DEPONENT: I have no reason --

19 SPECIAL MASTER GARRIE: Answer the
20 question. 09:46:09

21 THE DEPONENT: I have no reason to doubt
22 they were telling me the truth.

23 Q. (By Mr. Loeser) And, Mr. Cross, when you
24 spoke to those two individuals, did you bring to
25 their attention the series of documents that we 09:46:19

Page 1213

HIGHLY CONFIDENTIAL

1 sent over to you before your deposition that talked 09:46:22
2 about the identification of strategic partners and
3 the revenue received from them in whitelisting
4 decisions?

5 A. And so I think the last of what you said 09:46:40
6 there is -- is not -- I'm not sure I fully
7 understand. We -- the -- I'm sorry. I -- that was
8 about three things in that -- in that question
9 which -- which I would like to unpick.

10 Can you ask me the question again, 09:46:58
11 please.

12 Q. Mr. Cross, were you provided with any
13 contemporaneous -- contemporaneous written record
14 from the people you spoke to about the basis for
15 whitelisting decisions that indicated that revenue 09:47:26
16 and ad spend was not taken into account in making
17 those decisions?

18 A. Was I provided with any
19 contemporaneous -- like -- sorry. I'm -- I'm
20 really -- I'm really just not sure I'm 09:47:45
21 understanding that question.

22 Q. Okay. By "contemporaneous," I mean at
23 the time the whitelisting decisions were made, were
24 you provided with any written record from the time
25 at which whitelisting decisions were made that 09:47:59

Page 1214

HIGHLY CONFIDENTIAL

1 indicated that ad revenue -- that ad spend and 09:48:01
2 revenue was not taken into account in the
3 whitelisting decisions?

4 MR. SCHWING: Object to form.

5 THE DEPONENT: I was not provided with -- 09:48:16
6 with -- with documents that -- that state that
7 ad revenue was not included in the decision-making.

8 Although my -- again, my conversations
9 and the documents I've reviewed talk about what
10 factors were included, it would not necessarily be 09:48:37
11 normal for them to be explicit, that was not
12 included.

13 Q. (By Mr. Loeser) And, Mr. Cross, when
14 conducting your own investigation to determine if
15 you had been told the truth, did you go find out 09:48:53
16 how much money the whitelisted partners had paid to
17 Facebook after 2014?

18 MR. SCHWING: Object to form.

19 THE DEPONENT: I, in preparation for this
20 case, did not attempt to find out how much revenue 09:49:17
21 these partners -- certain partners had paid
22 Facebook over time. And because from my own
23 observations in speaking to the people involved,
24 the decisions to whitelist were based on the desire
25 to keep valuable integrations running and to 09:49:42

Page 1215

HIGHLY CONFIDENTIAL

1 minimize broken experiences for widely used apps, 09:49:51
2 and to give developers, some developers additional
3 time to migrate.

4 In -- in none of that -- none of those in
5 the documents that I reviewed about the time in 09:50:08
6 terms of whitelisting decisions, was -- was revenue
7 mentioned in relation to friend data.

8 Q. (By Mr. Loeser) Mr. Cross, I'm going to
9 ask you one more time. And I would like a
10 yes-or-no answer to a yes-or-no question. 09:50:24

11 And then we can be finished for the
12 night.

13 In conducting your own investigation to
14 determine if you had been told the truth, did you
15 go find out how much money the whitelisted partners 09:50:34
16 had paid to Facebook after 2014, yes or no?

17 MR. SCHWING: Argumentative.

18 THE DEPONENT: No, I did not conduct an
19 investigation into how much money those partners
20 had spent on ad revenue. 09:51:00

21 MR. LOESER: Thank you. Those are the
22 questions I have.

23 Just noting for the record, Mr. Schwing,
24 we do have concerns about the ability of the
25 witness to testify as to certain topics. I won't 09:51:14

Page 1216

HIGHLY CONFIDENTIAL

1 take anymore of his time right now on the record. 09:51:17

2 We can talk about that later, but obviously reserve
3 the right based on our ongoing conversations to --
4 to have more questions of perhaps another witness.

5 But I appreciate Mr. Cross's time. I 09:51:29

6 know this has been a -- a long deposition, and
7 thank you very much for your willingness to
8 participate. And that's all I have for the night.

9 MR. SCHWING: And, Derek, obviously we --
10 we reserve all rights and with respect to the issue 09:51:44
11 you raised and we're happy to discuss that with you
12 off the record at a later time.

13 One housekeeping item is, I would suggest
14 that the witness be given 45 days to review his
15 testimony. I think that's what we've been doing 09:52:00
16 for the most part in the case --

17 SPECIAL MASTER GARRIE: 30 days.

18 MR. SCHWING: -- provide any corrections.

19 SPECIAL MASTER GARRIE: I think Gibson
20 requested 30 days. 09:52:11

21 MR. SCHWING: Well, Special Master
22 Garrie, I think we actually were using 45. The
23 last time I got on with Mr. Cross I said 30 days
24 because I was the new guy, and didn't realize what
25 we had been doing. 09:52:21

Page 1217

HIGHLY CONFIDENTIAL

1 SPECIAL MASTER GARRIE: Is that in the 09:52:22
2 protocol? There was an explicit request in the
3 protocol. I can't remember what it is.

4 MR. SCHWING: Yeah.

5 SPECIAL MASTER GARRIE: But I know you 09:52:28
6 added specific language for that request, so
7 whatever it is -- it is.

8 MR. LOESER: We can go off the record and
9 we can --

10 MR. SCHWING: Yeah, and the other -- 09:52:36
11 well, before we go off the record -- we're still on
12 the record, right?

13 SPECIAL MASTER GARRIE: Still on the
14 record.

15 MR. SCHWING: The testimony and documents 09:52:46
16 should -- the testimony should be treated as
17 "Highly Confidential" and we'll be obviously
18 reviewing the testimony and making appropriate
19 designations.

20 MR. LOESER: Understood. 09:52:58
21 Okay. Let's go off the record.

22 THE VIDEOGRAPHER: Okay. We're off the
23 record. It's 9:53 p.m.

24 (TIME NOTED: 9:53 p.m.)

25 ---o0o--- 09:53:06

Page 1218

HIGHLY CONFIDENTIAL

1 I, SIMON CROSS, do hereby declare under
2 penalty of perjury that I have read the foregoing
3 transcript; that I have made any corrections as
4 appear notes; that my testimony as contained
5 herein, as corrected, is true and correct.

6 Executed this ____ day of _____,
7 2022, at _____, _____.

8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

SIMON CROSS

Volume 5

Page 1219

1 I, Rebecca L. Romano, a Registered
2 Professional Reporter, Certified Shorthand
3 Reporter, Certified Court Reporter, do hereby
4 certify:

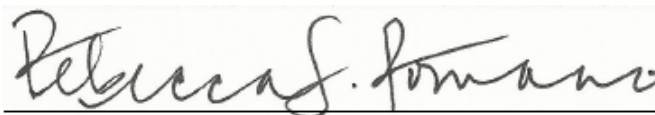
5 That the foregoing proceedings were taken
6 before me remotely at the time and place herein set
7 forth; that any deponents in the foregoing
8 proceedings, prior to testifying, were administered
9 an oath; that a record of the proceedings was made
10 by me using machine shorthand which was thereafter
11 transcribed under my direction; that the foregoing
12 transcript is true record of the testimony given.

13 Further, that if the foregoing pertains to the
14 original transcript of a deposition in a Federal
15 Case, before completion of the proceedings, review
16 of the transcript [X] was [] was not requested.

17 I further certify I am neither financially
18 interested in the action nor a relative or employee
19 of any attorney or any party to this action.

20 IN WITNESS WHEREOF, I have this date
21 subscribed my name.

22
23 Dated: June 24, 2022



Rebecca L. Romano, RPR, CCR

CSR. No 12546

Page 1220

SIMON CROSS

si@fb.com

June 24, 2022

RE: In Re: Facebook, Inc. Consumer Privacy User Profile
Litigation

June 21, 2022-SIMON CROSS 30(B)(6)-Volume 5-5291734

The above-referenced transcript has been
completed by Veritext Legal Solutions and
review of the transcript is being handled as follows:

___ Per CA State Code (CCP 2025.520 (a)-(e)) - Contact Veritext
to schedule a time to review the original transcript at
a Veritext office.

___ Per CA State Code (CCP 2025.520 (a)-(e)) - Locked .PDF
Transcript - The witness should review the transcript and
make any necessary corrections on the errata pages included
below, notating the page and line number of the corrections.
The witness should then sign and date the errata and penalty
of perjury pages and return the completed pages to all
appearing counsel within the period of time determined at
the deposition or provided by the Code of Civil Procedure.

___ Waiving the CA Code of Civil Procedure per Stipulation of
Counsel - Original transcript to be released for signature
as determined at the deposition.

___ Signature Waived - Reading & Signature was waived at the
time of the deposition.

Page 1221

HIGHLY CONFIDENTIAL

1 _X_ Federal R&S Requested (FRCP 30(e)(1)(B)) - Locked .PDF

2 Transcript - The witness should review the transcript and
3 make any necessary corrections on the errata pages included
4 below, notating the page and line number of the corrections.
5 The witness should then sign and date the errata and penalty
6 of perjury pages and return the completed pages to all
7 appearing counsel within the period of time determined at
8 the deposition or provided by the Federal Rules.

9 ___ Federal R&S Not Requested - Reading & Signature was not
10 requested before the completion of the deposition.

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

Page 1222

HIGHLY CONFIDENTIAL

In Re: Facebook, Inc. Consumer Privacy User Profile
Litigation

SIMON CROSS 30(B)(6)-Volume 5-5291734

E R R A T A S H E E T

PAGE_____ LINE_____ CHANGE_____

REASON_____

PAGE_____ LINE_____ CHANGE_____

REASON_____

PAGE_____ LINE_____ CHANGE_____

REASON_____

PAGE_____ LINE_____ CHANGE_____

REASON_____

PAGE_____ LINE_____ CHANGE_____

REASON_____

PAGE_____ LINE_____ CHANGE_____

REASON_____

WITNESS

Date

Page 1223

HIGHLY CONFIDENTIAL

[& - 20180815]

| | | | |
|----------------------------|--------------------------|-------------------------|-------------------------|
| & | 1131:10,23 | 1020:20 1026:18 | 1199:20 1200:10 |
| & 986:14 987:19 | 1132:12 | 1030:6 1036:15 | 1201:20 1204:12 |
| 989:5 990:5 991:5 | 100 1077:19 | 1038:21,22 | 1215:17 1216:16 |
| 995:16,20,22 | 1105:25 1112:16 | 1045:2,14,15,17 | 2015 1029:18 |
| 1221:23 1222:9 | 1007 993:14 | 1047:23,23,25 | 1056:2 1100:7 |
| 0 | 1101 993:17 | 1048:4,5 1049:5,8 | 1117:11 1118:11 |
| 019 993:15 | 1107 993:21 | 1051:3 1052:4 | 1118:20 1119:1 |
| 01952426 994:6 | 1111 993:24 | 1055:15,16,20 | 1121:8 1137:3 |
| 1116:16 | 1116 994:4 | 1056:11,14,15 | 1144:4 1147:24 |
| 01952427 994:7 | 1139 993:6 | 1067:25 1071:19 | 1155:20 1169:12 |
| 0236297 1007:10 | 113a 993:22 | 1076:12 1087:17 | 1201:16 |
| 02674226 993:25 | 1171 994:12 | 1089:10 1105:13 | 2016 1001:4,20 |
| 1111:7 | 11:52 1045:4 | 1113:2 1128:13 | 1002:10 |
| 02843 986:4 987:4 | 1201 988:11 | 1129:20,22 | 2017 1051:1 |
| 02898663 993:18 | 1206 993:7 | 1130:6 1137:2 | 2018 1001:8,12 |
| 1102:24 | 1207 993:8 | 1138:11 1144:22 | 1002:19,21 |
| 02898670 993:22 | 1222 986:25 | 1181:10 1200:1,8 | 1003:1,11 1004:3 |
| 1108:3 | 12546 986:21 | 1202:5 | 1006:6 1067:1,3,9 |
| 02936297 993:15 | 1220:25 | 2.0 1027:12 | 1067:13 1076:19 |
| 06.14.2018 | 12th 989:10 | 1128:11 1129:16 | 1076:24 1080:5 |
| 1104:13 | 14 1062:5 | 1130:3,7,10,12 | 1083:6,21 |
| 1 | 14th 1102:19 | 2.1. 1001:1 | 1085:25 1102:19 |
| 1 1006:9,14,17 | 15 1100:9 1170:3 | 20 1002:9 1100:8 | 1111:9 1113:24 |
| 1049:10 1068:1,3 | 15th 1045:3 | 20-0466 986:22 | 1116:18 1118:25 |
| 1068:4,6,16,21 | 1056:2 1111:9 | 2001 990:16 | 1120:13,16 |
| 1069:3,23 | 1113:24 | 2007 1053:2 | 1121:6,16 |
| 1070:16,21 | 1600 989:11 | 1205:1,7,8 | 1127:10 1136:25 |
| 1071:13,16,19 | 16th 1005:15,18 | 2013 1045:3 | 1139:22 1140:12 |
| 1072:5 1105:12 | 18 986:4 987:4 | 1054:24 1055:17 | 1147:15 1148:3 |
| 1128:13 1129:20 | 1051:1 | 1055:23 1056:9 | 1168:3,20 |
| 1129:22 1131:14 | 1801 991:8 | 1062:5 1079:24 | 1185:18,24 |
| 1132:10 1137:2 | 1881 991:16 | 1100:8 | 1186:2,12,18,23 |
| 1169:5 1180:10 | 19 1206:21 | 2014 1000:25 | 1189:9 1190:8,13 |
| 1181:10 1199:25 | 1970 1049:4,10 | 1029:2 1098:19 | 1190:18 1191:1 |
| 1200:8 1202:5 | 1:37 987:18 995:2 | 1099:23 1100:1,8 | 1191:22 1192:1 |
| 1222:1 | 995:6 | 1127:9 1144:4,21 | 1192:10,16,20 |
| 1.0 1029:17 | 1st 1192:1,6,10 | 1147:17 1151:3 | 1193:9,14,15,19 |
| 1120:18 1127:14 | 2 | 1151:16,19,22 | 1196:21 1197:3 |
| 1128:10 1129:11 | 2 1009:1 1010:20 | 1155:5,17 | 1206:21 |
| 1129:13,15 | 1011:18 1016:23 | 1167:20 1169:1,3 | 20180815 1111:10 |
| | 1018:1 1019:2 | 1169:7 1170:3 | 1113:15,22 |

HIGHLY CONFIDENTIAL

[2019 - 8:23]

| | | | |
|---|--|---|--|
| 2019 996:10 1023:8 1061:11 1063:11 1064:4,8 1064:22 1082:23 1083:1,15 1085:22 1127:10 1168:3 1193:15 2020 996:10 1001:16 1193:3,5 1193:10 2022 986:16 987:18 995:1,6 1005:15 1219:7 1220:23 1221:3,5 2025.520 1221:9 1221:12 206 988:14 21 986:16 987:18 995:1 1221:5 2100 990:17 213 992:10 214 990:19 21st 995:6 22nd 1116:18 1148:3 24 1220:23 1221:3 25 1045:4 253-9706 992:10 270,000 1115:21 28,122 1114:19 2843 986:3 987:3 28th 1190:18 1192:15,20 298-5735 991:11 2:58 1046:15 3 3 1071:19 1075:18 1076:13 1105:14 1107:15 30 986:12 1107:22 1156:10,17 | 1157:15 1159:16 1164:9,14,22 1165:21 1217:17 1217:20,23 1221:5 1222:1 1223:2 3000 990:9 303 991:11 30th 1029:18 3200 988:12 32nd 992:8 339 994:12 1171:23,25 34 1145:21 3491 986:23 353 1009:1,11 1010:17 1011:19 393-8200 990:11 3:33 1046:18 3:43 1005:15 3p 1105:13,14 3rd 1113:9 1115:11 4 4 1071:19 1075:4 415 989:13 990:11 4200 991:9 427 1117:2 428 1004:20 1091:10 1092:20 1092:22 1094:14 1094:22 1095:12 1107:19 429 993:14 1007:5 1007:9,10 1020:2 1046:21 1053:15 1055:22 1072:10 1072:22 1076:15 1078:4 1091:3 1093:5 1094:12 1094:19 | 430 993:17 1101:17,21 1102:18 1108:4,7 431 993:21 1107:11,15,16,18 1108:2 432 993:24 1111:2 1111:6,6 433 994:4 1116:11 1116:15 1146:10 1146:10 1147:4 434 1145:22 445-4003 989:13 45 1217:14,22 4th 1191:1,21 5 5 986:17 993:3 995:7 1005:13 1007:25 1071:19 1074:3,6 1219:13 5-5291734 1221:5 1223:2 52427 1116:16 5291734 986:24 555 989:10 990:8 992:7 5:07 1101:13 5:21 1101:16 5:22 1102:16 5th 992:7 6 6 986:12 1068:16 1068:19,20,21 1069:4,25 1070:3 1070:21,22 1071:13,13,17,19 1072:5 1073:9,13 1073:14 1107:22 1138:19 1148:15 1156:10,17 | 1157:15 1159:22 1161:7 1164:14 1164:22 1165:3 1165:21 1198:5 1199:10 1221:5 1223:2 6/22/2018 1145:25 623-1900 988:14 650 991:18 661792110 1019:3 698-3204 990:19 6:22 1138:6 6:38 1138:9 6:40 1139:9 7 7 1138:20 1148:15 1159:22 1161:15 1163:15 1198:6 1199:10 7321 1220:24 75201 990:18 7:29 1139:12 7:48 1146:20 7:50 1146:23 7a 1161:13 1162:14,20 1163:9 7b 1169:20 8 8 1113:2 80202-2642 991:10 827 986:22 849-5206 991:18 8667 1103:16 1105:5,6 1108:8 8668 1102:24 8:18 1167:12 8:23 1167:15 |
|---|--|---|--|

HIGHLY CONFIDENTIAL

[90 - added]

| | | | |
|---------------------------|--------------------------|---------------------------|---------------------------|
| 9 | 1186:17 1189:18 | 1131:22 1132:1,9 | 1211:18 1212:7 |
| 90 1003:24 1004:2 | 1195:20 1196:11 | 1132:12 1133:24 | 1213:12 1214:16 |
| 1005:2,5,16 | 1196:15 1203:2 | 1137:1,2 1141:6 | 1215:2 |
| 1006:11 | 1203:12 1204:3,7 | 1141:12,15,24 | accurate 1006:20 |
| 90013 992:9 | ac 1083:7 | 1142:10,22,24 | 1013:6 1030:16 |
| 94105-0921 | access 1001:15,19 | 1143:12,24 | 1041:11 1067:4 |
| 990:10 | 1001:23 1002:3,5 | 1144:3,17 1145:2 | 1073:11 1074:6 |
| 94304-1211 | 1002:8 1009:20 | 1145:6 1147:17 | 1083:17 1100:24 |
| 991:17 | 1009:24 1015:18 | 1147:23 1149:24 | 1115:24 1123:23 |
| 94607 989:12 | 1026:16 1033:2 | 1151:2,15,19,21 | 1124:25 1127:21 |
| 98101 988:13 | 1041:21 1047:20 | 1152:10,12,24 | 1127:24 |
| 986 986:25 | 1051:25 1052:2 | 1153:11 1154:12 | achieved 1035:19 |
| 998 993:5 | 1052:11,17 | 1155:15,20 | acquire 1152:16 |
| 9:24 1206:5 | 1053:3,11,21 | 1161:14 1162:25 | acquired 1149:19 |
| 9:34 1206:8 | 1054:12,16 | 1167:18,24 | action 1220:18,19 |
| 9:53 1218:23,24 | 1058:12 1059:3 | 1168:1,5,6,9,14 | actions 986:7 |
| | 1059:13,20 | 1168:16,21,23 | 987:7 1003:4 |
| a | 1060:1,5 1061:8 | 1169:1 1179:17 | actively 1003:2 |
| a.m. 1045:4 | 1061:15,25 | 1180:18 1181:22 | 1099:5 |
| aa 1078:5,24 | 1062:14,18,24 | 1185:1,5 1186:4 | activities 1017:12 |
| ab 1082:7 | 1063:17 1065:12 | 1192:2,24 | actual 1096:6 |
| ability 1003:25 | 1078:12 1079:7 | 1193:11 1195:8 | 1169:22 1170:7,9 |
| 1005:1 1014:13 | 1081:4,8,15 | 1199:19 1201:6 | ad 1086:3 1111:11 |
| 1032:19 1128:3 | 1090:19,25 | 1202:2 1203:4 | 1114:1 1179:14 |
| 1133:8,10 | 1091:18,20,24 | 1204:12,15,23 | 1179:21 1180:4 |
| 1145:11 1155:19 | 1092:3 1093:2,14 | 1207:3 1208:15 | 1180:11 1181:3,7 |
| 1187:23 1188:8 | 1093:19,24 | 1210:8 1211:10 | 1181:12,14,24 |
| 1191:16 1197:12 | 1094:25 1095:2,8 | 1211:14 1213:4 | 1182:3 1183:7 |
| 1198:1,16 1199:5 | 1095:13,18 | accessed 1107:9 | 1184:17 1208:13 |
| 1204:3 1216:24 | 1097:2 1101:8 | 1109:1 | 1209:7 1211:17 |
| able 1008:5,6,7,13 | 1104:12,24 | accessibility | 1211:17 1212:7 |
| 1008:14 1011:7 | 1105:13 1106:5,6 | 1193:8 | 1213:11 1214:16 |
| 1015:7,8 1035:18 | 1106:8 1107:7 | accessible 1137:11 | 1215:1,1,7 |
| 1087:6 1104:3 | 1117:9,22 | 1153:12,24 | 1216:20 |
| 1106:6,8 1130:22 | 1118:10,19 | 1155:1 | adaniel 988:17 |
| 1139:20 1145:13 | 1119:1,3,15 | accessing 1094:1 | adavis 989:15 |
| 1152:3 1153:18 | 1120:3,7,10,13,17 | 1097:12 1122:19 | add 999:5 1036:17 |
| 1156:12 1159:5,6 | 1121:6,6 1122:9 | 1131:9 | added 1037:25 |
| 1171:8 1177:20 | 1124:12,17 | account 1181:4,8 | 1055:1,2,4,5,6,8 |
| 1178:5 1180:19 | 1125:1,6,14 | 1181:13,19,21 | 1055:10,12,23 |
| 1183:14,15 | 1126:8 1131:18 | 1209:8,15 | 1056:6,8,9,19 |

HIGHLY CONFIDENTIAL

[added - anymore]

| | | | |
|---|---|--|---|
| 1057:24 1058:2 1058:13 1059:8 1063:10,14,15,21 1066:14 1080:2,5 1080:7,10,18,21 1083:5 1085:15 1085:22,24,25 1086:2 1187:7,22 1218:6 addition 1014:10 1059:4 additional 998:6 999:16,22 1006:1 1052:2,18 1053:20 1058:17 1079:6 1080:10 1081:3,22 1083:20 1112:18 1124:12 1125:7,8 1138:12 1147:23 1161:1 1168:4,21 1169:13 1179:18 1186:9,21 1199:25 1202:9 1216:2 address 1017:18 addressed 1109:20 adele 988:8 995:17 adjusted 1007:13 1007:14 admin 1032:15,17 1032:25 1033:5,6 1033:21,24 1034:3,8 1036:11 1037:1 administered 998:14 1038:2 1220:8 | admins 1032:18 1105:14 admitted 1024:19 ads 1182:9 1184:14 1185:8 advance 1103:11 1113:1 advent 1033:7,16 1034:2 advertise 1183:1 advertising 1170:17,18,21 1182:7,11,15 1183:13 1185:15 1207:10 advise 1015:8 ae 1089:3,11 affect 1028:8 affirmative 1194:2 afraid 1025:4 1039:9 1047:19 1075:13 1134:7 1142:14 1158:24 1189:4 1198:21 1199:17 1206:1 ago 1077:11 1109:8 1117:16 1146:9 agree 1136:15 1162:8 1163:5,8 1164:1 1165:22 agreed 1053:9 agreement 1052:2 1052:18 1053:20 agreements 1058:17 1079:6 1079:14 1081:4 1081:22 ahead 1009:12 1018:23 1060:13 | 1095:5,25 1104:22 1113:7 1124:3 1133:5 1134:4 1186:17 1188:16 1189:24 aleksander 1155:21 1158:5 allow 1009:23 1042:11 1060:3 1197:14 1198:3 1198:18 1199:7 allowed 1004:9 1062:19 1125:6 1126:12 1200:7 1201:6 allows 1131:18 ally 1156:7 als 1193:8 altered 1097:9 alto 991:17 altogether 1151:18 amount 1183:25 1189:10 analysis 1179:5 1183:17,20 analytica 1114:18 1140:13,19 1141:2,4,9 1160:13,17,19 1195:17 1196:20 1196:22 1197:6 android 1197:4 angeles 992:9 anne 989:7 995:19 announced 1000:25 1029:3 1029:22 1192:9 announcement 1029:11,16 | announces 1028:15 answer 1002:7 1035:18 1058:22 1074:13 1093:22 1104:4,8,22 1109:22 1120:25 1124:3 1134:8 1153:14 1156:12 1156:15,16 1157:1,5,10,17,19 1157:20,21,23 1158:3,11,11,23 1158:25 1159:2,6 1159:10 1165:6,7 1165:11,13,15,23 1166:21,22 1172:11 1175:8 1176:10,13 1182:21 1186:17 1189:17,18,18,20 1193:23 1194:1,4 1194:15 1195:21 1196:11,15 1197:24 1199:12 1199:16 1211:24 1212:1 1213:9,19 1216:10 answered 1063:18 1162:11 1165:19 1165:22 1179:1 1211:21 answering 1158:1 answers 1138:14 1157:1 1159:13 anticipation 1066:15 anybody 1035:25 1209:6 anymore 1109:23 1217:1 |
|---|---|--|---|

HIGHLY CONFIDENTIAL

[anytime - application]

| | | | |
|------------------------|----------------------|-------------------------|------------------------|
| anytime 1208:21 | 1127:14,17,19,20 | 1195:16 1196:19 | 1114:10,12,15,20 |
| ap 1144:22 | 1128:3,7,12,13 | 1200:21 | 1119:25,25,25 |
| 1154:21 | 1129:1,3,4,5,6,11 | apologies 1108:1 | 1120:1 1122:18 |
| apart 1185:13 | 1129:23 1130:6,7 | apologize 996:17 | 1124:12 1131:9 |
| api 1000:23,25 | 1131:14,16,23,25 | 997:19 1003:7 | 1131:13 1132:8 |
| 1001:3,7,15,19 | 1132:1,10,13 | 1005:22 1076:1 | 1133:12 1144:16 |
| 1003:15,17 | 1137:2,2 1142:22 | 1096:10 | 1150:8 1152:12 |
| 1020:16,16,18 | 1142:24 1144:22 | app 1001:10,14 | 1152:16,24 |
| 1023:4,5,7,11,14 | 1152:20 1153:17 | 1003:17,19 | 1155:23,24 |
| 1023:16,18,24,25 | 1154:14 1169:4,5 | 1004:2 1005:4,8 | 1158:8,8 1185:19 |
| 1024:3,8,12,18,25 | 1170:3 1180:9 | 1005:10,11,12,14 | 1185:22 1187:7 |
| 1025:3,6 1027:23 | 1181:10 1191:25 | 1005:17,19 | 1187:22 1190:15 |
| 1028:9,16 1033:7 | 1192:11,22,25 | 1006:5,11,18 | 1191:16 1192:20 |
| 1033:9,16 1034:2 | 1196:23,23 | 1009:23 1021:12 | 1193:2,2,4,5,6,8 |
| 1034:5 1039:3,5,6 | 1199:25 1200:19 | 1026:15 1027:5 | 1194:13 1195:6,8 |
| 1042:17,21 | 1201:12,12 | 1027:24 1028:8,9 | 1201:4,5,10,13 |
| 1043:9,12,15,16 | 1202:2,5 1203:7 | 1028:24 1030:17 | 1203:7 1204:10 |
| 1043:18,20,24 | 1206:22 1207:3 | 1030:23 1033:2 | 1206:23,23 |
| 1044:1,7,19 | 1207:21 1208:3 | 1034:23 1035:1,4 | 1207:21,24 |
| 1045:11,20,24 | apis 1002:3,5 | 1036:18 1038:7,8 | 1208:15 |
| 1046:2,4 1047:11 | 1027:11,22 | 1039:12 1040:12 | appear 1043:22 |
| 1048:13,23 | 1029:4 1039:1 | 1040:12,16,18 | 1219:4 |
| 1049:22 1050:15 | 1120:7,11,13 | 1041:2,6 1042:11 | appearances |
| 1050:23 1061:10 | 1122:8,22 1123:9 | 1042:14,16 | 988:1 989:1 990:1 |
| 1061:13 1064:10 | 1123:12,21 | 1051:25 1052:16 | 991:1 992:1 |
| 1064:11,16,23 | 1124:9,23 | 1054:17 1058:12 | appearing 988:2 |
| 1065:4,25 1066:6 | 1128:10,15,18,23 | 1059:12,13 | 989:2 990:2 991:2 |
| 1066:10 1082:21 | 1128:25 1129:12 | 1062:20 1083:14 | 992:2 1221:18 |
| 1082:23 1083:22 | 1129:14 1131:15 | 1086:25 1090:18 | 1222:7 |
| 1083:25 1084:10 | 1131:25 1144:4 | 1090:22,23,24 | appears 1105:11 |
| 1084:24,25 | 1145:2 1151:2,15 | 1091:2,13,15 | 1113:23 |
| 1096:12,17,17,18 | 1151:21 1152:9 | 1092:7,8,21,23 | apple 1169:11 |
| 1097:1,6,18,25 | 1152:11 1154:11 | 1093:24 1094:24 | application |
| 1098:16 1117:9,9 | 1154:18,21 | 1095:7,18,21 | 1036:13 1037:2 |
| 1117:23 1118:9 | 1163:1,1 1167:18 | 1096:5,7,12,16,20 | 1112:3 1163:12 |
| 1118:10,19,19 | 1167:24 1168:8 | 1097:1,6,12,15,17 | 1168:1 1169:17 |
| 1119:1,4 1120:18 | 1168:14,16 | 1097:18,24,25 | 1187:3 1194:10 |
| 1121:6,7 1122:11 | 1188:25 1189:6 | 1099:5,25 1100:4 | 1201:1,2,3 |
| 1122:16 1123:6 | 1189:22 1190:1,4 | 1100:5,20 1101:7 | 1202:17 1203:3 |
| 1123:15,19 | 1190:6,9,19,22,25 | 1101:8 1111:23 | 1203:12,13,15,17 |
| 1124:10,18,19 | 1191:3,9,12,23 | 1112:3,4,5 | |

HIGHLY CONFIDENTIAL

[applications - assess]

| | | | |
|--|--|--|--|
| applications 1034:5 1062:21 1141:12,14 1152:8,20 1153:18,20,22 1154:15 1167:23 1200:18 1201:16 1201:19 | 1003:12 1009:23 1027:17,23 1029:17 1032:19 1033:11,20,22,25 1034:9,10 1037:24 1038:1,4 1038:4,13,20,23 1039:3,15,17,21 1039:22,23,23 1040:3,8,9,9,20 1041:20,21,21 1042:1,4,4,7,8 1061:14 1086:23 1093:14,18,19 1095:13 1104:12 1104:24 1105:13 1105:14,14,15 1106:14 1117:9 1117:22 1118:9 1118:19,25 1119:3,16 1120:1 1120:7,10,13 1121:5 1122:4,8 1122:17 1123:16 1125:6 1126:7,12 1126:16,25 1127:13 1128:2 1130:12,16,21 1131:1,18 1132:1 1132:19 1133:25 1137:1 1140:15 1141:5,24 1143:2 1143:17 1145:1,6 1147:16,22 1148:13 1149:7 1151:1,15,18,21 1152:5,7,10,13 1153:10,12,25 1154:6,8,11 1155:15,19 1161:16,24 | 1163:16 1167:18 1167:19 1168:4 1168:14,20 1173:14 1174:17 1178:12 1179:17 1180:8,18 1184:25 1185:4 1189:11 1190:3 1192:2,16 1193:10,16 1197:12,14 1198:1,3,16,18 1199:5,7,24 1200:7,21 1201:24 1202:6,8 1202:10,13,22 1203:1,5 1204:13 1204:21 1207:3 1209:15 1210:17 1211:9 1213:4 1216:1 april 1029:18 1190:13 1191:1 1191:21 1193:14 archibong 1116:17 1117:3 1145:25 1148:2 1170:12 1174:11 1174:21 1175:18 1175:23 1176:19 1177:5 1178:18 1178:24 1179:3,5 1179:7 1180:23 1180:24 1181:14 1209:2 area 1162:12 1196:23 areas 1141:21,21 argue 1071:8 1138:22 | argumentative 1209:20 1210:14 1213:17 1216:17 arm 1182:11 articles 1140:19 1140:21,22 articulating 1083:25 articulation 1084:6 articulations 1084:10 aschwing 990:12 aside 1132:8 asked 1000:22 1002:16 1063:18 1130:24 1147:7 1159:23 1165:16 1168:13 1175:8,9 1177:19 1179:1 1180:15,16 1195:15 1197:22 1206:17 1211:20 1213:6 asking 1003:8 1015:5 1048:2,3 1070:15 1071:9 1073:25 1074:25 1090:13,15 1118:7 1121:1 1132:6 1137:4 1157:18,20 1159:21 1160:10 1163:2 1164:10 1165:20 1166:20 1166:23 1173:8 1189:14 1198:12 1198:13 asks 1169:20 assess 1024:20 1168:4 1209:25 |
|--|--|--|--|

HIGHLY CONFIDENTIAL

[assessed - behalf]

| | | | |
|---|--|---|---|
| assessed 1067:7 1067:12,18 1088:2 assessment 1022:17 1068:18 1069:10 1088:7 1168:25 assessments 1088:3 1210:3 associate 992:16 associated 1009:7 1011:15,18 1013:9,19 1014:5 1094:21 1111:8 1112:5 1114:24 1129:1 assume 1015:6 1184:19 assuming 999:12 atlas 1149:2,14,15 1149:18,20 attached 1007:7 1101:19 1107:13 1108:4,11 1111:4 1116:13 attachment 1073:23 1074:2 1104:12 attachments 1104:10 1109:24 attempt 1015:17 1015:18 1046:5 1064:18 1065:5 1084:15 1090:21 1150:14 1215:20 attempted 1106:4 attempting 1104:8 1104:16 1150:4 1212:25 attention 1103:15 1213:25 | attorney 990:7,15 991:15 1220:19 attorneys 988:10 989:9 991:7 1086:18 august 1000:25 1045:3 1055:17 1056:2 1111:9 1113:24 auld 989:5 995:16 995:20 austin 990:6 995:22 1086:11 1086:21 1095:3 1103:13 1104:20 1124:1 1133:3 1166:5 1175:14 1186:15 authority 1144:16 1145:1 authorized 1152:8 1154:9 auto 1004:8 1009:16,19 1010:17 1011:20 automated 1003:5 1003:10 1004:1 1005:1,3,16 1006:4 automatic 1002:25 1003:21 available 1001:2,5 1001:22 1012:22 1014:2 1017:9,13 1017:15,17 1034:16,18 1039:17 1042:5 1047:18 1060:2 1095:9 1122:20 1122:20 1129:21 1151:13 1153:22 | 1155:12 1188:11 1188:13 1189:11 1191:18 1200:23 avenue 988:11 990:16 avoid 1199:20 aware 1024:1 1029:2,5,13 1035:11 1036:20 1042:15 1045:21 1058:3,7,10 1082:5 1115:12 1115:17 1134:24 1135:5 1179:18 1183:5 1197:18 1198:7,12,25 1208:20 b b 986:12 992:5 993:11 994:1 1010:19,22 1011:3,14,18 1107:22 1112:4 1114:20 1136:4 1156:10,17 1157:15 1164:14 1164:22 1165:3 1165:21 1193:7 1221:5 1222:1 1223:2 back 1010:13,19 1015:20 1023:21 1046:17 1050:25 1056:1 1064:2 1078:4 1101:15 1102:15 1110:23 1134:2,18,22 1138:8 1139:11 1140:1 1146:22 1157:12 1163:15 1165:24 1166:12 | 1166:13 1167:2,6 1167:14 1172:16 1175:10 1176:14 1206:7 1213:8 backfilled 1133:8 background 1116:7 backward 1168:25 bar 1119:12 1121:5 1136:19 1136:24 1206:13 1207:18 bars 1206:22 base 1096:18 1098:17 1101:5 based 1092:8 1094:9 1132:10 1179:13 1180:4 1196:15 1204:1 1207:21,24 1208:17 1215:24 1217:3 basis 1014:21 1123:13 1127:19 1127:20 1140:7 1145:8 1208:16 1214:14 bates 1007:10 1102:24 1108:3 1116:16 bear 1162:12 began 1002:16,19 1023:8 1193:14 beginning 1163:15 behalf 987:16 995:16,18,20,22 996:2 1138:11 1199:13 |
|---|--|---|---|

HIGHLY CONFIDENTIAL

[behave - capabilities]

| | | | |
|---|---|--|---|
| behave 1200:18 1203:16 | bottom 1103:1,15 1105:5,6 1108:8 | bypass 1126:12,16 1127:1,14 1128:3 | campen 988:7 |
| behavior 1027:15 1037:5,18 1096:7 1096:21 1097:9 1122:13,16 1123:15 1124:10 1124:18 1130:12 1131:19 1201:13 1206:23 1207:21 1208:3 | break 1046:10,12 1046:12,20,24 1090:2 1110:11 1110:19 1113:4 1138:3,20,20 1159:18 1200:17 1200:25 1203:19 1203:20 | c | canonical 1076:6 1117:18 |
| behaviors 1123:16 1131:16 | breaking 1130:20 1199:21 | c 1009:12,15 1010:15 1091:13 1092:25 1094:24 1112:7,14 1114:8 1136:5 | cap 1044:13 1057:3 |
| believe 996:9 997:7 1000:25 1034:24 1113:4 1136:9 1156:11 1157:14 1204:25 | breaks 1130:15 1200:23 | c2 993:15,22 | capa 1034:21 |
| believes 1198:9 | brief 1207:14 | ca 993:15,18,19,22 993:25 994:6,7 1007:10 1102:24 1107:16 1108:3 1111:7 1116:16 1221:9,12,20 | capabilities 996:23 1000:16 1001:25 1002:10 1002:17,22,23 1003:2,12,13 1004:21 1007:3 1008:19 1010:8 1010:10 1011:4 1011:10 1012:21 1013:23 1015:10 1015:24 1016:14 1026:7 1033:6 1034:12 1035:9 1035:10 1039:2 1044:2 1045:19 1052:22 1053:4 1054:11 1055:1 1055:11 1057:3,6 1057:16,20 1058:13 1059:4 1059:12,19,23,25 1060:4 1061:6,15 1061:23 1062:13 1062:20,23 1063:10,16,24 1065:7,12,13,15 1066:25 1067:3 1077:3 1078:9,25 1079:22,25 1080:3,8,9,11,14 1080:15,21,23 1081:1,7,15 1082:11 1083:2 1083:12 1084:21 1085:7 1088:10 |
| best 1086:12 1087:7 1127:16 1133:8,10 1140:8 1156:6,11 | bring 1065:5 1213:24 | california 986:2 986:21 987:2 989:12 990:10 991:8,17 992:9 | |
| better 1087:6 | broad 1125:15 | call 1017:23 1020:16 1096:13 1096:17,18 1097:1,18 1101:7 1130:16,16,22 | |
| beyond 1033:24 1034:9 1037:16 1040:22 1047:13 1202:7,12 | broadly 1041:16 1063:12 1170:20 | called 1016:8 1046:5 1100:21 1101:6,9 1119:12 1121:5 1125:5 | |
| bfalaw.com 989:14,15,16 | broke 1140:13 1141:4 | calls 996:11,11,15 996:15 1003:15 1003:17 1097:6 1098:1 1100:4 1132:10 1152:20 1153:17 1154:15 | |
| big 1129:13 | broken 1200:3,11 1201:7 1202:13 1202:22 1203:6 1204:5 1216:1 | cambridge 1114:18 1140:13 1140:19 1141:2,4 1141:9 1160:13 1160:17,19 1195:17 1196:20 1196:22 1197:6 | |
| birth 1163:9 | build 1149:12 | | |
| bit 1004:20 1033:4 1110:15 1140:4 1161:11 | builds 1042:5 | | |
| blank 1020:21,23 | built 1038:9,13 1080:1 1196:25 1196:25 1197:1 1201:11,19 1203:17 | | |
| bleichmar 989:5 995:16,20 | bunch 1022:12 | | |
| boolean 1006:9,17 1031:3,4 1032:4,5 1043:7 1058:3 | buongiorno 990:14 995:25 | | |
| | business 1170:21 1182:11 1184:17 1185:15 | | |
| | buy 1182:9 | | |

HIGHLY CONFIDENTIAL

[capabilities - case]

| | | | |
|--------------------------|-------------------|--------------------|-------------------------|
| 1088:11,15,19,24 | 1017:18,24 | 1056:18 1057:4,6 | 1126:22 1127:7 |
| 1089:23 1090:7 | 1018:4,6,11,13,14 | 1057:10 1058:5 | 1127:15,18,25 |
| 1090:18,25 | 1018:16,17,17,21 | 1058:12,16,20,21 | 1128:1,2 1131:1,7 |
| 1091:6,17 1092:2 | 1019:1,6,7,10,14 | 1058:24,24 | 1131:8,9,18,19,22 |
| 1092:10 1093:1,3 | 1020:8,18 | 1059:1,1,3,7,9,10 | 1131:24 1132:2,7 |
| 1093:6,7 1094:7 | 1021:13,22 | 1062:19,24,25 | 1132:15,22 |
| 1097:2,19 | 1022:3,6,9,17 | 1063:1,7,17,22 | 1133:7,13,15 |
| 1098:12 1099:21 | 1023:1 1024:9,13 | 1064:1,17 1066:7 | 1183:9 1185:20 |
| 1099:24 1100:3 | 1024:19 1025:1,7 | 1067:5,18 | 1185:22 1186:9 |
| 1100:18,21,24 | 1025:12,16,16,19 | 1070:16 1072:10 | 1186:12,20 |
| 1119:18,19 | 1025:20,22,23 | 1078:12,21 | 1187:2,7,13,22 |
| 1121:3 1122:6,21 | 1026:1,1,3,7,13 | 1079:7 1080:6,19 | 1188:10,12,14,16 |
| 1123:7,11,14,22 | 1026:14,23,24,25 | 1081:8,20 | 1188:21 1206:24 |
| 1124:16 1127:12 | 1027:1,2,3,4,9,16 | 1082:13 1083:14 | 1207:2,25 |
| 1127:24 1128:6 | 1027:16,17 | 1084:3,11,17 | capable 1183:18 |
| 1130:14,16,20 | 1028:8,22,23,23 | 1085:3,4 1087:3 | 1184:9 |
| 1131:2 1133:1 | 1030:9,12,13,16 | 1087:21,22,23,23 | capacity 1076:7 |
| 1134:16 1136:10 | 1030:21,21,22,23 | 1088:1,4,18 | 1100:18 1156:10 |
| 1136:11,13 | 1031:12 1032:19 | 1089:2,9,12,20 | 1156:17 1157:18 |
| 1169:23 1186:1,3 | 1033:2,14 1034:5 | 1090:23 1091:3,6 | 1157:21 1160:3 |
| 1186:7,21 1187:1 | 1034:14,16,21,22 | 1091:12,20,22,24 | 1165:3,4,10,14,21 |
| 1188:15 1192:11 | 1035:1,5,6,13 | 1092:13 1093:4,4 | 1166:19 |
| 1192:23 1193:11 | 1036:12,17,25 | 1093:15,24 | captured 1019:21 |
| 1206:15 | 1037:2,25 | 1094:1,2,7,9,21 | 1019:23 1021:15 |
| capability 1000:4 | 1038:19,22 | 1094:22,23,25 | 1021:16 1022:7,9 |
| 1000:5 1002:4,6 | 1039:4,16,20 | 1095:8,14,19,22 | 1022:11 1035:2,9 |
| 1003:16,18,19 | 1041:22,24 | 1095:23 1096:5 | 1035:13,15 |
| 1004:1 1005:2,3 | 1042:20 1043:11 | 1096:12,13,16,19 | 1043:24 1059:9 |
| 1005:10,14,17,19 | 1043:11,14,16,18 | 1096:21 1097:8 | 1063:25 |
| 1006:5,10,18 | 1043:20 1044:25 | 1097:10,13,19,24 | captures 1054:22 |
| 1007:12,16 | 1045:1,2,3,20 | 1098:1,3,10,15,18 | cari 988:7 |
| 1009:5,6,8,10,11 | 1048:12 1049:21 | 1098:21 1099:6 | case 986:4 987:4 |
| 1009:13 1010:1,2 | 1049:24 1050:9 | 1099:25 1100:4,5 | 1012:23 1013:16 |
| 1010:4,6,11,16,24 | 1050:12 1052:1 | 1100:7,13,16,20 | 1034:11 1037:6 |
| 1011:12,16,19,19 | 1052:11,16,17 | 1101:1,3,4,6,8,9,9 | 1037:19 1072:17 |
| 1011:22 1012:1 | 1053:7,11,14,16 | 1119:7,24 1120:2 | 1073:23 1132:4 |
| 1012:18,22 | 1053:17,19,24,25 | 1120:8 1122:11 | 1134:13 1141:23 |
| 1013:3,10,20,25 | 1054:2,4,8,16,17 | 1122:12,15 | 1145:7,7 1155:24 |
| 1014:6 1015:17 | 1054:20 1055:4,5 | 1123:5,16,20 | 1158:8,18 |
| 1015:24 1016:11 | 1055:16,22,23 | 1124:9,10,11 | 1159:23 1160:25 |
| 1016:15,20 | 1056:2,6,11,14,18 | 1125:3 1126:21 | 1161:2,12,14 |

HIGHLY CONFIDENTIAL

[case - column]

| | | | |
|---|--|--|--|
| 1162:20 1163:19 1167:19 1177:21 1180:21 1198:10 1215:20 1217:16 1220:15 cases 1018:7 1051:20 1160:14 1166:2 1203:2 catch 1006:25 cate 1067:2 categorization 1066:25 1067:2 1204:9 categorized 1042:11 1204:14 1204:21,22 category 1187:17 1187:18 cathy 1101:23 1102:20,21 caveat 1040:14 ccp 1221:9,12 ccr 986:21,22,23 1220:24 cell 1016:22 1049:8 1089:10 certain 996:11 1014:1 1059:6 1073:4 1082:4 1086:23 1112:14 1120:11,21 1128:7,15 1173:14 1174:24 1175:19 1176:2 1179:13,17 1180:3 1187:1 1188:10 1204:9 1215:21 1216:25 certainly 998:1 1062:4 1097:23 1150:18 1208:18 | 1210:12 certified 987:20 987:21 1220:2,3 certify 1220:4,17 challenges 1142:4 1142:8,15,18,25 1143:7 1147:15 chance 1103:2 1147:9,12 chang 1205:11,16 1205:17 change 1122:13 1192:4,15 1201:13,14 1223:4,7,10,13,16 1223:19 changed 1006:20 1019:16 1034:13 1054:21 1120:20 1131:20 1190:25 1200:19 changes 1029:22 1074:12 1124:18 1128:12,14 1129:19,19,23 1170:3 1175:3,6 1175:25 1176:24 1181:10 1192:9 1210:1 characterization 1202:16 1203:1 check 1003:15,17 1098:1 1101:6,10 1113:5 checked 1026:15 1096:19 1101:1,3 checks 1027:4 1096:20 1100:13 chen 992:16 995:23 | choose 1203:12 chose 1010:11 1203:13 chronologically 1103:1 circle 1165:24 circular 1165:15 circumstances 1082:14 civil 1221:19,20 clar 999:23 clarification 1000:2 1025:17 1032:12 1140:7 1146:12 1165:19 clarifications 1002:13 clarify 998:5 1000:13,21 1006:23 1009:19 1123:1 1140:2 1148:24 1157:11 clarifying 999:23 class 1086:23 1171:14 classification 1077:22,25 claufenberg 988:16 clause 1171:11 clear 996:20 1047:22 1048:2 1070:14 1072:18 1074:11 1092:17 1094:3,10 1096:2 1128:17 1132:5 1153:10 1155:11 1156:17,25 1159:24 1164:19 1164:22 1166:6,9 1177:2 1183:19 | clearer 1105:19 clearly 1028:2 1123:4 clicked 1107:25 closely 1014:9 cms 1012:5,11,12 1012:14,24 1013:19,24 1014:5,8,25 1015:16,18 code 1010:4 1016:6 1019:7 1026:15 1035:5 1096:18 1098:17 1101:5 1221:9,12 1221:19,20 collapsed 1066:20 collection 1129:14 colorado 991:10 column 1004:12 1004:25 1005:6,7 1005:13 1006:4,7 1006:8,14,15,17 1008:25 1009:12 1009:15 1010:1 1010:14,15,19,22 1011:2,3,14,18 1012:4,7,10 1013:2 1014:12 1014:24 1015:12 1016:3,23 1017:25 1018:20 1018:24,24 1019:12 1020:9 1020:12,20,23,25 1021:3,7 1022:14 1024:10 1025:6 1025:10 1026:2,5 1026:9,19,20 1027:9 1030:13 1030:15,25 |
|---|--|--|--|

HIGHLY CONFIDENTIAL

[column - consent]

| | | | |
|-------------------|------------------------|--------------------------|--------------------------|
| 1031:2,11,15,22 | 1114:20 | companies 1117:5 | concerns 1117:25 |
| 1032:9,14 1033:1 | columns 1004:22 | 1182:9 1184:15 | 1140:25 1197:5,7 |
| 1033:17,19 | 1005:25 1007:14 | company 1046:6 | 1216:24 |
| 1036:6,15,21 | 1008:20 1018:23 | 1076:22 1141:10 | concrete 1028:12 |
| 1037:9,13,15,20 | 1032:13 1033:13 | 1141:10 1149:18 | 1029:1 |
| 1038:1,15,25 | 1033:13 1049:24 | 1158:11 1170:24 | concurred |
| 1039:8,11,12 | 1066:21 1085:12 | 1176:25 1177:1 | 1208:24 |
| 1041:9,23 | 1085:24 1095:11 | 1196:22 1199:13 | concurs 1209:13 |
| 1042:17 1043:1,5 | 1095:12,15 | 1212:25 | conduct 1216:18 |
| 1043:22 1044:22 | 1112:22 | companywide | conducted |
| 1045:6,7,19,24 | combination | 1012:11 1044:18 | 1048:15,23 |
| 1046:21,22 | 1085:1 | complete 1117:22 | 1049:12 1050:1 |
| 1047:2,14,18,24 | come 1077:21,24 | 1142:4 1207:2 | 1054:10 1067:8 |
| 1048:1,7,8,14,18 | 1085:2 1145:8,19 | completed 1221:7 | 1088:3 1183:3 |
| 1049:5,9,16,25 | comes 1087:11 | 1221:17 1222:6 | conducting |
| 1050:2,5,11 | comfortable | completely | 1215:14 1216:13 |
| 1051:2,21 | 1159:10 1199:12 | 1051:18 1107:4 | confer 1136:22 |
| 1052:13 1056:6,8 | coming 999:17 | 1124:25 | 1137:19 1138:25 |
| 1056:8,9,11,13,15 | 1145:23 | completeness | confident 1024:5 |
| 1056:19,20 | commenced | 999:18 | 1037:11 1039:11 |
| 1057:8,13 1059:4 | 1003:11 | completes 1089:22 | 1040:6 1047:5 |
| 1059:8 1063:3,9 | commencing | 1089:24 | 1048:5 1050:24 |
| 1065:24 1066:3 | 987:17 | completion | 1051:10 1068:12 |
| 1066:22 1067:21 | comment 1142:15 | 1220:15 1222:10 | 1086:1 1151:25 |
| 1067:25 1068:3 | 1161:6 | complicated | confidential |
| 1068:18 1069:21 | comments | 1033:4 1193:24 | 986:11 1218:17 |
| 1070:8,12,18 | 1163:13 1191:16 | compound | confirm 999:4 |
| 1072:10,20 | common 1011:6 | 1153:16 1186:6 | 1014:15,18 |
| 1073:10 1078:5 | 1133:23 1166:6 | comprehensive | 1017:13 1024:2 |
| 1078:24 1079:21 | commonly | 1081:13 1185:19 | 1031:17 1046:25 |
| 1082:7 1083:2,5,7 | 1049:14 | 1185:22 | 1077:19 1087:13 |
| 1083:10 1085:21 | communicate | comprise 1008:19 | 1100:14 1183:14 |
| 1085:22 1086:1,3 | 1109:9,11 | comprising | confirms 1211:2 |
| 1087:3,25 1089:3 | communicated | 1090:7 | confusion 1146:16 |
| 1089:7,11,25,25 | 1013:12 | computer 1175:10 | connected 1010:7 |
| 1091:13 1092:25 | communication | con 1059:25 | connection |
| 1092:25 1094:23 | 1074:22 1076:11 | concept 1042:15 | 1010:14 1177:12 |
| 1094:24 1111:21 | communications | 1067:9 1205:6 | 1177:23 |
| 1111:21,23 | 1196:15 1198:22 | concerned 997:17 | consent 1086:7,9 |
| 1112:1,4,7,14,15 | 1199:15 | concerning 1057:4 | 1086:14,18 |
| 1112:21 1114:7,8 | | | 1087:10,12,16 |

HIGHLY CONFIDENTIAL

[consider - corrections]

| | | | |
|---------------------------|-------------------------|--------------------------|-------------------------|
| consider 1140:21 | content 1012:13 | 1198:17 1199:7 | convenient 998:8 |
| considerations | 1012:15,17 | 1201:5,6 1202:18 | conversation |
| 1179:10 | 1013:4,5,9,12 | 1204:15 1211:9 | 1137:17 1147:19 |
| considered | 1014:13,19,22 | 1213:4 | 1176:20 1184:7 |
| 1030:12 1038:4 | 1050:11 1073:16 | continues 1159:25 | 1185:14 |
| 1038:20 1040:20 | 1074:4,12,16,18 | 1194:19 1195:4 | conversations |
| 1049:3 1158:18 | 1074:19,23 | contract 1051:21 | 1213:3 1215:8 |
| 1205:4 1210:7 | 1075:5,6,8,11,11 | 1052:4,8,12 | 1217:3 |
| 1212:21 | 1151:12 1195:8 | 1053:7,9,14,20 | cool 1103:17 |
| considers 1179:9 | context 1005:25 | 1054:1,9,18 | corporate 986:13 |
| consistently | 1012:3,14 | 1057:5,10,21 | 1198:14,22 |
| 1205:8 | 1026:22 1028:6 | 1058:6,11 1059:2 | 1199:3,15 |
| constitutes 1041:6 | 1028:11,20 | 1059:7,13 1060:6 | 1208:11 |
| consumer 986:4 | 1029:14 1030:1,3 | 1060:18 1061:8 | corporations |
| 987:4 995:8 | 1030:20 1032:14 | 1061:24 1062:24 | 1184:14 |
| 1086:23,23 | 1043:3 1051:7,8 | 1063:3,10,17,23 | correct 998:19 |
| 1221:4 1223:1 | 1051:11 1068:4,6 | 1064:19,21 | 1002:1,2,20 |
| cont'd 990:1 991:1 | 1069:7,9 1074:17 | 1065:4,14,16 | 1010:3 1012:1 |
| 992:1 994:1 | 1076:3,10,15 | 1078:10,11 | 1015:25 1018:24 |
| contact 1046:5 | 1112:19 1114:9 | 1082:1 | 1018:25 1025:13 |
| 1066:18 1221:9 | 1114:15,17 | contracts 1052:22 | 1038:23 1046:22 |
| contain 1013:24 | 1117:13,18 | 1053:3 1054:3,10 | 1048:25 1050:2 |
| 1066:3 1085:13 | 1121:1 1124:20 | 1059:16,20,22 | 1053:15 1055:18 |
| 1099:15 1120:10 | 1125:18 1128:21 | 1060:1 1061:1,3,9 | 1056:3,14 1063:4 |
| contained 1006:8 | 1136:7 1143:22 | 1061:12,15,18 | 1068:9 1069:22 |
| 1034:25 1041:24 | 1143:23 1149:16 | 1062:7,14,15 | 1070:20,23,24 |
| 1073:6 1088:25 | 1149:17 1151:7 | 1064:3,7,9,11,12 | 1073:13 1075:19 |
| 1106:11 1124:22 | 1184:5,6 1185:11 | 1064:13,24 | 1080:16 1092:18 |
| 1132:21 1174:22 | 1194:6 | 1065:6,11,18,22 | 1094:15,25 |
| 1177:7 1178:7 | contexts 1027:21 | 1065:23 1078:6 | 1103:22 1105:12 |
| 1179:6 1207:19 | 1028:20 1030:1 | 1078:25 1079:5,9 | 1112:23 1118:3 |
| 1219:4 | continue 1006:19 | 1079:21 1080:8 | 1118:13 1128:23 |
| containing | 1130:16 1131:9 | 1080:24 1081:6 | 1129:16 1140:15 |
| 1012:25 | 1132:12 1139:20 | 1081:11,11,15,22 | 1141:7 1146:12 |
| contains 1038:1 | 1168:6,23 1190:7 | contrary 1209:18 | 1177:4 1219:5 |
| 1051:20 1085:12 | 1197:10 | control 1133:23 | corrected 1219:5 |
| 1088:1 1092:11 | continued 1132:9 | controlled 1038:9 | correcting |
| 1122:4 1132:16 | 1141:6 1144:17 | 1129:5 | 1096:15 |
| 1134:14 | 1145:2,6 1147:17 | controlling | corrections |
| contemporaneous | 1193:10,14 | 1124:17,18 | 1217:18 1219:3 |
| 1214:13,13,19,22 | 1197:14 1198:3 | | 1221:14,15 |

HIGHLY CONFIDENTIAL

[corrections - data]

| | | | |
|--------------------------|---------------------------|--------------------------|---------------------------|
| 1222:3,4 | created 1010:11 | 1141:22 1142:7 | cutting 1076:1 |
| correctly 1010:16 | 1018:21 1019:1,5 | 1142:17,25 | d |
| 1064:6 1070:4 | 1019:13 1025:15 | 1146:2 1148:11 | d 993:1 1012:4,7 |
| 1118:5 1121:9 | 1026:7 1035:2 | 1150:20 1151:1 | 1012:10 1013:2 |
| 1132:6 1195:21 | 1038:2,14 | 1155:21 1156:8 | 1014:12,24 |
| correspondence | 1044:22,25 | 1156:22 1159:16 | 1015:12 1092:25 |
| 1189:15 | 1045:3,20 | 1159:17,22 | 1094:23 1112:15 |
| counsel 988:1 | 1055:16 1056:2 | 1160:1 1162:25 | daily 1014:21 |
| 989:1 990:1 991:1 | 1060:19 1067:7 | 1167:1,16 | dallas 990:18 |
| 992:1,16 995:13 | 1069:14,19 | 1169:19 1171:24 | dan 1116:17 |
| 1073:9,24 | 1074:19 1076:19 | 1176:1,9 1179:12 | 1117:2 1145:24 |
| 1074:22 1102:4 | 1076:23 1080:13 | 1189:24 1193:20 | 1148:3 |
| 1103:17 1108:24 | 1080:19 1081:5 | 1195:15 1196:18 | daniel 988:8 992:5 |
| 1110:12,19,23 | 1084:7 1111:9 | 1197:11,21 | 995:17 |
| 1135:15,22,24 | 1112:13 1113:24 | 1198:11 1199:2 | data 996:12 |
| 1136:3 1137:14 | 1118:9 | 1199:18 1202:1 | 1011:5 1015:7 |
| 1137:22,23 | creates 1018:12 | 1204:6,11 | 1022:14,18 |
| 1157:12 1161:6 | 1018:16 1025:19 | 1205:10 1206:11 | 1023:1 1024:9,14 |
| 1162:23 1163:7 | 1026:1 | 1208:5 1209:17 | 1024:22 1025:1 |
| 1163:13 1164:1,3 | creating 1085:17 | 1209:23 1211:15 | 1028:9 1052:15 |
| 1166:14 1189:15 | criteria 1021:8,12 | 1212:5 1213:6,10 | 1054:21 1055:25 |
| 1196:5 1221:18 | 1021:21 1022:2,6 | 1213:23 1214:12 | 1056:8 1057:19 |
| 1221:21 1222:7 | 1022:8,10 | 1215:13 1216:8 | 1066:3 1070:12 |
| counted 1117:7 | 1024:21 1172:2 | 1217:23 1219:1 | 1079:16 1081:12 |
| couple 1026:17 | cross 986:13 | 1219:12 1221:1,5 | 1081:14 1090:10 |
| 1110:20 1147:5 | 987:15 993:3 | 1223:2 | 1092:12 1094:1 |
| 1206:11 | 995:12 996:6,8,22 | cross's 995:7 | 1095:9 1097:12 |
| course 1113:21 | 997:3,20 998:4,13 | 996:19 1217:5 | 1098:5 1099:2,7 |
| court 986:1 987:1 | 998:18 999:21 | crowdtangle | 1099:10 1104:13 |
| 987:21 996:2 | 1000:14,18 | 1040:16,17 | 1104:25 1105:13 |
| 1007:6 1101:18 | 1008:5 1020:1 | crutcher 990:5 | 1117:8,10 |
| 1102:9 1107:12 | 1067:17 1077:1 | 991:5 995:22 | 1118:11,17,20 |
| 1111:3 1116:12 | 1082:20 1086:16 | csr 986:21,21,22 | 1119:1 1121:7 |
| 1175:12 1220:3 | 1092:14 1101:20 | 1220:25 | 1134:6,19,24 |
| cover 1064:19 | 1103:3 1107:22 | currently 1016:23 | 1135:5,21 1137:3 |
| 1065:16 1162:15 | 1109:1 1111:15 | 1205:18 | 1137:16 1140:14 |
| covered 1022:18 | 1124:4 1136:10 | custodians | 1140:23 1141:6 |
| covers 1006:24 | 1136:24 1137:22 | 1059:16 | 1141:25 1143:12 |
| create 1025:23 | 1138:11 1139:16 | cut 1032:23 | 1143:25 1144:17 |
| 1031:23 1069:17 | 1139:22 1140:1 | 1135:3 1166:17 | 1145:3 1147:17 |
| | 1140:12 1141:3 | | 1149:24 1151:2,7 |

HIGHLY CONFIDENTIAL

[data - deponent]

| | | | |
|-------------------------|---------------------------|--------------------------|------------------|
| 1151:9,16,19,22 | dates 1083:18 | declare 1219:1 | 1024:17 1027:14 |
| 1153:11,24 | dating 1123:8 | decree 1086:14 | 1028:6,18 |
| 1154:18,22,22 | davis 989:7 | defend 1162:21 | 1029:13,21 |
| 1155:16,22 | 995:19 | define 1084:22 | 1032:2 1035:23 |
| 1158:6 1167:19 | day 1005:16 | 1194:16 | 1040:5 1044:6 |
| 1168:9,10,14,16 | 1006:11 1007:23 | defined 1022:18 | 1046:9 1052:24 |
| 1169:1,2,3,12 | 1007:25 1157:16 | 1022:19 1023:2 | 1053:6 1054:6,20 |
| 1180:19 1181:11 | 1185:2 1190:17 | 1089:14 1162:16 | 1056:23 1057:23 |
| 1185:1,5 1186:4,5 | 1219:6 | 1162:22,25 | 1058:15 1059:6 |
| 1186:9,22 | days 1003:24 | defines 1086:15 | 1059:15 1060:9 |
| 1188:25 1189:7 | 1004:2 1005:2,5 | 1086:22 | 1060:14,25 |
| 1189:22 1190:2,7 | 1138:23,24 | defining 1082:16 | 1061:17 1062:2 |
| 1190:11,20 | 1160:4 1217:14 | 1084:23 | 1062:17 1063:20 |
| 1191:10 1192:12 | 1217:17,20,23 | definition 1038:5 | 1065:9 1067:16 |
| 1192:23 1193:21 | deal 1138:15 | 1038:6,11 1041:6 | 1069:12 1070:2 |
| 1193:25 1194:4,5 | 1176:25 | 1042:10 1076:6 | 1070:11 1072:4 |
| 1194:8,12,16,18 | decide 1203:19 | 1086:13 1087:2,6 | 1072:13,24 |
| 1194:19,22 | decided 999:5 | 1117:18 1122:22 | 1074:9 1075:21 |
| 1195:4,17 | deciding 1181:15 | 1151:14 1162:21 | 1076:5,17 1077:9 |
| 1196:19 1197:13 | 1181:17 1209:8 | 1193:25 1194:7 | 1078:2 1079:3 |
| 1198:2,16 1199:6 | 1211:18 1213:3 | 1194:17 1198:20 | 1081:18 1082:3 |
| 1201:5,6 1204:12 | decision 1044:8,20 | definitions | 1082:19 1084:14 |
| 1208:8,15,22 | 1143:17 1145:5,9 | 1039:25 | 1086:11,21 |
| 1211:10 1213:5 | 1161:16,23 | deliver 1207:7 | 1088:13,23 |
| 1216:7 | 1163:16 1180:12 | 1208:8 | 1090:3,21 1092:5 |
| database 1010:25 | 1180:18 1181:4,8 | denver 991:10 | 1093:22 1095:2,6 |
| 1011:5,9,10,13,13 | 1181:22 1208:22 | department | 1097:5,22 |
| 1011:23,25 | 1210:8,21 | 1170:17,19 | 1104:19,23 |
| 1142:10 | 1211:13 1212:22 | depend 1200:21 | 1105:24 1106:13 |
| date 1004:5 | 1215:7 | depended 1132:2 | 1106:19 1107:2 |
| 1006:16,16,18 | decisions 997:1 | 1194:16 1202:20 | 1115:12 1116:3 |
| 1008:11 1049:14 | 1039:3 1043:23 | depending | 1117:15 1118:23 |
| 1055:3,6 1057:14 | 1044:1 1170:4 | 1162:21 1188:7 | 1119:24 1121:19 |
| 1063:13 1080:16 | 1178:20,22 | 1193:24 1203:16 | 1122:24 1124:1 |
| 1095:16,16 | 1179:8 1210:17 | depends 1125:10 | 1126:10 1127:4 |
| 1102:18 1113:24 | 1212:8,20 | 1194:21 1201:4 | 1127:23 1128:5 |
| 1220:20 1221:16 | 1213:13 1214:4 | deponent 987:16 | 1129:18 1130:19 |
| 1222:5 1223:24 | 1214:15,17,23,25 | 993:2 1002:25 | 1131:12 1132:15 |
| dated 1116:18 | 1215:3,24 1216:6 | 1012:9 1013:15 | 1133:6,22 1134:5 |
| 1145:25 1148:3 | deck 1173:4,12 | 1013:22 1015:16 | 1135:13 1140:18 |
| 1220:23 | 1178:1,4 | 1016:17 1017:20 | 1140:25 1141:9 |

HIGHLY CONFIDENTIAL

[deponent - determined]

| | | | |
|------------------|--------------------------|--------------------------|--------------------------|
| 1141:18 1142:2 | deponent's 986:15 | 1029:10 1126:17 | designee 1138:13 |
| 1142:13 1143:6 | deponents 1220:7 | 1129:12 1169:4,5 | 1198:14 1199:3 |
| 1143:20 1144:2 | deposition 986:12 | 1172:25 1191:20 | 1208:11 |
| 1144:10,19 | 987:15 995:7 | deprecations | desire 1166:6 |
| 1145:5,13 | 997:21 998:9 | 1126:13,17 | 1208:2 1215:24 |
| 1147:19 1148:16 | 1107:21 1109:11 | 1127:2,14 1128:3 | detail 1035:12,14 |
| 1150:2,12 1151:5 | 1110:2,5,9 1113:1 | 1128:15,22 | 1035:21 1038:12 |
| 1151:25 1152:19 | 1113:11 1116:2 | derek 988:6 | 1072:14 1075:22 |
| 1153:5,17 | 1136:16 1150:1 | 1195:24 1217:9 | 1085:18 1129:24 |
| 1154:14,20 | 1150:11 1156:1 | describe 1025:18 | details 1040:19 |
| 1155:3 1156:2,23 | 1158:20 1160:2 | 1049:1 1082:12 | 1070:12,15 |
| 1157:4 1158:1,10 | 1163:20 1166:7 | 1090:15 1105:11 | 1071:14 1078:6 |
| 1158:21 1159:9 | 1197:17 1212:13 | 1153:13,13 | 1078:25 1079:10 |
| 1159:19 1167:22 | 1214:1 1217:6 | 1168:15 1182:6 | 1079:22 1080:9 |
| 1168:19 1169:15 | 1220:14 1221:19 | described 1193:22 | 1081:6,11,14 |
| 1171:18 1172:11 | 1221:22,24 | describing 1073:2 | 1121:22 1128:20 |
| 1173:2,20 1175:2 | 1222:8,10 | description | determinants |
| 1175:22 1176:5 | deprecate 1029:3 | 993:13 994:3 | 1079:4 |
| 1177:15 1178:9 | 1029:10 1195:16 | 1012:5,21,24,25 | determination |
| 1178:18 1179:2 | 1196:19 | 1018:1,3,6,10,14 | 1022:25 1040:21 |
| 1179:16,25 | deprecated | 1019:11,15,15,21 | 1051:24 1053:18 |
| 1180:7 1182:2,9 | 1000:24 1026:10 | 1019:23,25 | 1086:25 1089:1 |
| 1182:18 1183:5 | 1026:12,14,14,20 | 1020:6,7 1021:11 | 1157:6 1186:8 |
| 1183:12 1184:3 | 1026:24 1027:1,3 | 1058:16,19,21,22 | determinations |
| 1185:11 1186:7 | 1027:9,11,22 | 1058:23 1059:1,9 | 1075:13 |
| 1186:15,18 | 1028:7,11,14,16 | 1064:1 1073:8 | determine 1015:2 |
| 1187:20 1189:3 | 1028:18,22 | 1081:20 1083:12 | 1019:25 1035:4 |
| 1189:25 1197:18 | 1029:14,17,24,24 | 1093:9 1105:18 | 1041:1 1046:3 |
| 1198:7,21 | 1030:4,7,9,12,13 | 1105:21 1106:25 | 1059:24 1064:18 |
| 1199:11,23 | 1030:15,22 | 1188:15,18,19,22 | 1075:14 1085:14 |
| 1200:5,13 | 1032:4 1128:10 | descriptions | 1088:4 1097:1,12 |
| 1201:10 1202:15 | 1129:11,15,15 | 1075:15 | 1097:16 1099:4 |
| 1202:25 1203:10 | 1130:3,7,9 | designated | 1118:7 1121:2 |
| 1203:23 1204:20 | 1131:10,18 | 1068:20 1159:22 | 1134:11 1136:4 |
| 1205:3 1209:4 | 1132:13 1188:25 | 1160:6 | 1147:22 1153:19 |
| 1210:16 1211:4 | 1189:6,22 1190:3 | designation | 1167:17 1168:5 |
| 1211:22 1212:2 | 1190:9,14 | 1086:7,8 | 1178:5,12 |
| 1212:12 1213:18 | 1191:13,19 | designations | 1215:14 1216:14 |
| 1213:21 1215:5 | 1192:13 | 1218:19 | determined |
| 1215:19 1216:18 | deprecation | designed 1018:7 | 1043:21 1052:6,7 |
| | 1000:24 1028:15 | 1125:12,13 | 1052:11,14 |

HIGHLY CONFIDENTIAL

[determined - documentation]

| | | | |
|--------------------------|-------------------------|---------------------------|-------------------------|
| 1065:13 1087:4 | 1203:2,11,14 | 1142:21 1144:2,7 | disposal 1092:6 |
| 1088:19 1091:14 | 1204:10,22 | 1151:11 1152:15 | distinct 1131:15 |
| 1092:21 1157:22 | 1216:2,2 | 1153:25 1164:20 | district 986:1,2 |
| 1161:25 1163:17 | developing | 1189:13 1200:18 | 987:1,2 |
| 1167:25 1168:22 | 1175:24 | 1200:19 1201:2 | dloeser 988:15 |
| 1221:18,22 | development | 1203:16 | doctor 1017:16 |
| 1222:7 | 1161:8,9 | differently | document 986:6 |
| determines | device 1105:12 | 1023:22 1164:1 | 987:6 997:25 |
| 1024:13,25 | 1148:25 1149:4 | differs 1134:15 | 999:15,18 |
| 1096:18 | 1149:10,11 | difficult 1189:17 | 1012:11,25 |
| determining | 1197:1 1210:6 | digital 1114:11,13 | 1013:23,24 |
| 1024:9 1079:13 | devices 1149:13 | 1114:16,25 | 1014:4,8,11,13 |
| 1082:24 1084:2 | dgarrie 992:11 | 1115:4,7,16,19,22 | 1015:11,13,19 |
| 1091:17 1093:18 | dialogue 1136:2 | 1155:23 1158:7 | 1047:20 1053:15 |
| 1131:12 1186:25 | dictates 1162:14 | direct 1103:9,14 | 1056:21 1072:8 |
| 1208:14 | differ 1119:17 | 1124:15 | 1073:20,22 |
| developed | difference | direction 1220:11 | 1075:1 1078:16 |
| 1054:24 1085:10 | 1075:10,12,15 | directly 1023:14 | 1081:10,16 |
| developer 1027:5 | 1122:10 1123:13 | 1160:11 | 1092:23 1094:18 |
| 1051:25 1052:17 | 1149:4 | disagree 1136:8 | 1095:10,25 |
| 1053:8,19 1054:1 | differences | discovery 997:25 | 1096:11 1102:19 |
| 1059:20 1061:7 | 1119:22 | discuss 998:2 | 1103:3,4 1104:9 |
| 1061:24 1062:13 | different 999:9 | 1113:12 1136:14 | 1105:5,16,22 |
| 1062:13 1066:14 | 1011:4 1019:8 | 1159:23 1164:10 | 1106:3,5,7,9,10 |
| 1079:7 1120:15 | 1024:4 1027:8 | 1217:11 | 1106:11,17,22,24 |
| 1154:16 1176:7 | 1028:14,19,20 | discussed 996:6 | 1107:3,7,9 1108:3 |
| 1184:21 1185:16 | 1029:22,25,25 | 999:5 1027:22 | 1108:6,10,11,12 |
| 1196:23 1204:2 | 1030:5 1033:15 | 1090:6 1092:1 | 1108:15,20,25 |
| 1212:15 | 1037:7 1051:7 | 1121:5 1127:18 | 1110:15 1111:8 |
| developers 1001:2 | 1055:8,9 1066:16 | 1127:24 1175:2 | 1111:17,19,22 |
| 1012:23 1014:2 | 1067:24 1071:22 | discusses 1147:15 | 1112:12,19 |
| 1029:7,23 1042:3 | 1071:23 1087:22 | discussing | 1113:14,17 |
| 1052:21 1053:3 | 1099:8 1106:20 | 1004:12 1147:21 | 1114:4,20,24 |
| 1054:11 1059:17 | 1106:21 1107:21 | 1199:24 | 1115:2 1116:22 |
| 1061:20 1062:9 | 1107:25 1108:10 | discussion | 1117:15 1118:6,9 |
| 1065:11 1081:3 | 1108:16 1112:11 | 1101:21 1116:24 | 1172:13,15,18 |
| 1128:7 1132:12 | 1117:17,17 | 1139:7 1143:24 | 1211:2,5,16,23 |
| 1149:2,5,6,23 | 1119:19 1120:4 | discussions | 1212:3,24 |
| 1158:14 1176:6 | 1123:12 1124:20 | 1176:22 | documentation |
| 1176:23 1179:13 | 1124:20 1128:7 | displayed 1063:2 | 1024:24 1025:2 |
| 1180:3 1202:4,17 | 1130:13 1142:20 | 1098:3,18,21 | 1148:9,12,18 |

HIGHLY CONFIDENTIAL

[documentation - engineering]

| | | | |
|---|--|--|---|
| 1177:18 documented 1057:5 documents 996:5 1014:25 1070:25 1073:6 1090:7 1091:25 1092:6 1093:16 1109:8 1109:15,24 1113:10 1130:25 1177:21 1208:12 1209:13,18,24 1210:1,12,23 1211:5 1212:22 1213:25 1215:6,9 1216:5 1218:15 doing 1004:23 1090:16 1183:9 1183:18 1210:19 1217:15,25 doubt 1074:5,10 1075:25 1115:25 1116:3 1213:21 downloaded 1115:4 downloading 1111:13 downstream 999:8,16 draft 1173:4,12 1212:24 dramatically 1189:10 drew 1101:23 1102:21 drill 1170:8 1189:19 dropbox 1062:6 dunn 990:5 991:5 995:22 | duration 1001:3 e e 989:8 993:1,11 994:1 1016:3,23 1112:22 1171:6 1221:9,12 1222:1 1223:3,3,3 e1 1086:4,7,8 1087:4,9,18,21,24 1088:2,5,11,20 1089:2 earlier 1030:19 1055:15 1063:9 1063:23 1089:7 1117:6 1131:7 1147:10 1195:2 1206:12 early 1168:3 1193:15 1210:2 ecosystem 1175:24 1176:7 eddie 1101:22 1102:21 1117:8 1118:16 edited 1019:16,21 effect 1027:5 1028:23 1030:23 1030:23 1190:15 1190:17 1192:19 1197:20 effected 1192:16 1201:2 effective 1164:11 effectively 1111:14 efficiency 999:3 efficient 1169:20 effort 1065:10 1067:8 1121:20 1126:19 1185:4 1206:21 1207:17 | efforts 1141:11 effusive 1212:18 either 996:12 1031:4 1036:10 1036:22 1042:7 1052:6 1089:13 1089:19 1139:24 1167:24 1178:4 elapsed 1049:9 elia 1036:4 1101:22 1102:20 ellipsis 1051:3,6 1051:11 else's 1194:8 email 994:4 1073:23 1074:3 1113:9 1115:11 1116:15,21 1117:2 1118:17 1145:24 1146:5 1147:14 1148:17 1148:22 1150:3 emit 1145:2 1151:2,15,21 1154:18,21 1167:18 1168:14 1188:25 1189:7 1189:22 1190:2,7 1190:10,20 1191:10 1192:12 1192:23 1194:9 1195:17 1196:19 emits 1022:14,18 1023:1 1024:9,13 1025:1 1194:9 emitted 1186:3,21 1193:21 1194:4 1194:13,20,24 1195:4,11 emitting 1024:21 | emma 988:9 employed 1174:4 employee 1018:21 1025:22,25 1091:19,21,23 1100:19 1174:1 1187:6,8,15,16,17 1187:18,21 1220:18 employees 1032:18 enable 1062:12 1128:6 enabled 1061:23 enacted 1185:3 encapsulated 1137:18 encompass 1176:24 encourage 999:15 1135:16 ended 1006:16 1066:15 1100:7 1165:17 endpoint 1020:12 1020:15,19 endpoints 1020:10 1020:14,21 1021:3 eng 1016:4,18 engaged 1062:8 1084:11 1137:19 engineer 1017:15 1018:12,16 1035:24 1036:1 1066:14 1089:16 1089:19 engineering 1016:25 1017:2,3 1017:4,11 1035:17,17 |
|---|--|--|---|

HIGHLY CONFIDENTIAL

[engineering - exhibit]

| | | | |
|--|---|--|---|
| 1089:8,11,14 engineers 1015:7 1016:9 1017:5,22 1089:19 england 986:15 987:17 995:1 english 1010:10 ensure 1054:10 1065:16 enter 1054:1 1081:7 1090:23 entered 1008:23 1019:10 1021:22 1025:12 1030:8 1036:21,24 1039:7 1043:4 1047:2 1049:8 1050:16,18 1051:2 1052:22 1053:3 1059:12 1059:20,25 1061:7,15,24 1062:8,14 1064:14 1066:10 1069:1 1070:17 1070:21 1078:9 1078:18,20 1079:11,18,20 1080:16 1081:8 1194:23 entering 1018:10 1018:13 1021:17 1021:20 1050:11 1054:17 1078:23 enters 1026:3 entirely 1020:25 1037:4,11,17 1039:9,24 1071:21 1089:16 1151:25 1182:20 1183:19 | entirety 1131:23 entities 1126:1,2 1161:25 1163:17 1184:15,19 1185:7 entity 1036:19 1085:16 entries 1000:8,10 1014:23 1019:23 1030:24 1031:18 1034:9 1041:10 1041:13 1045:18 1047:3 1078:14 1079:9,10 1080:8 1081:10 1083:23 1083:23 1127:13 entry 1011:18 1013:2,5 1018:2 1020:21,23 1022:5 1026:19 1031:22 1033:19 1036:14 1045:14 1045:17 1051:17 1056:10,13,16,19 1068:7 1081:12 1082:14 epoch 1049:3 equals 1076:12 equivalent 1070:5 errata 1221:14,16 1222:3,5 establish 1116:7 1138:16 1169:21 evaluated 1044:20 1169:11 1203:23 1203:25 evaluation 1096:17 1172:23 1178:6 1183:6,8 1197:9 | evening 1139:16 event 1069:8,13 1069:14,14,17,19 events 1069:20 1191:10 everybody 1180:19 evolved 1055:7 1062:4 1081:16 1098:6 evolves 1024:24 ewright 988:18 exact 1004:6 1055:6 1125:11 1165:16,17 1193:16 exactly 1035:18 1037:12 1043:23 1051:10 1085:23 1086:1 1120:19 1120:21,21 1121:23 1148:20 1152:1 1177:15 1183:12 1185:12 1193:15 1203:16 1204:13 1211:6 examination 993:2 998:16 1139:13 1167:17 1183:2 1206:9 1207:15 examine 1168:8 examined 998:15 1181:23 1182:14 1182:25 example 1035:5 1040:11,15 1042:13 1055:15 1093:15 1097:10 1105:2 1128:9 1129:4 1144:12 | 1145:7 1152:20 1169:10 1195:5,9 1195:13 1197:1 1212:23 examples 1144:13 1149:10 1171:9 1190:22 1195:12 exceed 1155:24 1158:8 exceeded 1161:14 1167:19 1168:9 exceeding 1163:18 excel 993:14,21,24 1057:17 1108:17 1108:19 1111:7 exception 1006:15 excerpt 1007:16 1072:22 1094:19 excerpts 1090:13 1090:14 exchanged 1169:21 1170:7,9 excuse 1164:9 execute 1065:18 executed 1219:6 exemption 1181:9 1211:11 exemptions 1172:2 1173:15 1180:9 1210:18 exercise 1090:14 1090:16 1168:20 exhaustive 1185:4 exhibit 993:14,17 993:21,24 994:4 994:12 1004:14 1004:20 1007:5,9 1007:10,20,22,24 1008:9 1020:2 1046:21 1053:15 1055:22 1072:10 |
|--|---|--|---|

HIGHLY CONFIDENTIAL

[exhibit - facebook]

| | | | |
|---|--|---|--|
| 1072:22 1076:15 1078:4 1091:3,10 1092:20,22 1093:5 1094:12 1094:14,19,22 1095:12 1101:17 1101:21 1102:18 1107:11,15,16,18 1107:19,21 1108:2,4,7 1111:2 1111:6,6 1115:11 1116:11,15 1145:21,22 1146:10,15,25 1147:2,4,6 1171:23,25 1172:4 exhibited 1037:5 exhibits 994:10 1020:3 1109:24 1112:25 exist 1054:10 1067:11 1079:10 1079:22,24 1083:23 1091:6 1122:1 1133:16 existed 1001:3 1045:11,22 1046:1 1047:11 1048:13 1049:22 1050:15,23 1056:18 1058:12 1064:13,19 1065:11,16 1080:15 1099:17 1205:6,8 exists 1025:2 1051:12 1060:15 1080:14 1088:9 1088:17 1122:2 1123:19 1133:18 | 1134:17 1135:10 1137:10 expected 1018:8 1081:2 experience 1149:9 1149:12 1150:17 1199:21 1200:3 1200:11,17,24,25 1201:7,18,23,25 1202:11,13,22 1203:6 1204:5 experienced 1096:7 experiences 1149:13 1203:19 1203:20 1208:20 1211:8 1216:1 expert 1035:16 1134:6,10,20 1135:17 1159:5 1198:23 1199:14 expertise 1199:16 expiration 1005:7 1005:9,11,14 explain 1026:11 1031:24 1112:14 1112:20 1119:22 1166:20 1194:5 1206:18 explained 1029:23 1078:10 1188:16 explicit 1215:11 1218:2 exported 1063:6 exposed 1186:9 extend 1136:19 extension 1181:9 1202:2,12 1204:1 1211:11 extensions 994:5 1105:15 1116:19 | 1117:4,6 1146:1 1172:3 1173:15 1180:9 1202:7 1203:21 1210:18 extent 1123:4 1163:23 external 1012:5 extra 1200:7 f f 1017:25 1019:12 1095:12 facebook 986:3 987:3 990:4 991:4 995:8 996:7 997:2 1002:16,21 1007:2 1011:3,7 1011:24 1014:4,8 1014:12,24 1015:1 1016:6,13 1016:19,25 1018:20 1019:2 1023:12 1025:22 1025:25 1027:5 1027:10,22 1028:15 1029:2,5 1029:9 1032:18 1035:15 1038:2,9 1038:14 1040:10 1040:13 1042:5,7 1042:14 1044:3 1048:11,15 1052:19,21 1053:2,6,13 1057:20 1059:11 1060:3,19,21 1061:3,5,14,19 1062:8 1065:21 1072:9 1073:25 1074:3 1079:4,11 1081:16,25 1091:19,21,23 | 1096:13 1100:19 1109:16,25 1110:14 1112:3 1115:3,6,15,18,21 1115:22 1118:1,8 1118:25 1119:15 1119:25 1120:15 1121:14 1122:1,3 1125:17 1129:11 1130:25 1132:11 1133:17,19,23,24 1134:20 1135:11 1135:20 1136:2 1138:13 1140:13 1141:4,23 1143:3 1147:15 1148:12 1149:3,8,11,12,12 1149:19 1150:8 1151:1,9,10,14,17 1151:20,20 1152:1,3,4,6,9,12 1152:15,16,17,19 1152:21,23,24 1153:2,10,17,18 1153:21 1154:3,4 1154:4,6,8,10,10 1154:11,14,16,17 1154:20 1155:11 1155:15,18,22 1158:6,11,15 1161:24 1163:17 1165:6 1167:17 1168:24 1169:9 1169:11,16,22 1170:10,17,22 1171:9,13,16 1172:8,23,24 1174:1,4,8,23,25 1175:4,18,19 1176:2,8,23 1178:7 1179:12 |
|---|--|---|--|

HIGHLY CONFIDENTIAL

[facebook - finished]

| | | | |
|--------------------------|---------------------------|---------------------------|---------------------------|
| 1179:14,16 | 1069:14,20 | familiar 1114:10 | 1079:1,24 1080:2 |
| 1180:4 1181:25 | 1088:7 1089:1 | 1121:21 | 1080:7,10,13,17 |
| 1182:4,6,10,13,15 | 1096:18 1099:2 | family 1133:24 | 1080:18,20 |
| 1182:16,19,25 | 1119:16 1122:5 | far 1070:23,24 | 1081:5,8,12 |
| 1183:1,2,3,9,15 | 1127:16 1133:8 | 1134:1,18,22 | 1082:11,15 |
| 1183:17,25 | 1133:10 1140:23 | fb 993:15,18,19,22 | 1083:5,15,23 |
| 1184:1,9,10,13,13 | 1159:12 1184:16 | 993:25 994:6,7 | 1087:24 1092:13 |
| 1184:20,20,24 | 1198:8,13 1199:3 | 1007:10 1102:24 | 1186:19 1188:19 |
| 1185:3,6,8,13,15 | 1208:10 | 1107:16 1108:3 | fields 1054:22 |
| 1185:16,19,21 | faced 1142:3,3,16 | 1111:7 1116:16 | 1055:8 1071:12 |
| 1186:2,23 1187:6 | 1142:18 1143:1 | fb.com 1221:2 | 1073:2 1080:5 |
| 1187:8 1188:24 | 1147:15 | fb.quip 1105:22 | 1081:20 1083:18 |
| 1189:6,9,21 | facing 1120:5 | fbid 1010:19 | 1083:20,20 |
| 1190:9 1191:13 | fact 1022:5 1030:9 | 1011:3,14,21 | 1084:9,15,20 |
| 1193:21 1194:11 | 1032:6 1147:1 | 1012:2 | 1091:3 |
| 1195:16 1196:19 | 1160:14 1164:2 | features 1119:15 | fight 1160:24 |
| 1197:8,11,13,20 | 1179:12 1180:3 | 1120:5,15,17 | 1164:15 1196:7 |
| 1197:25 1198:2,3 | 1190:9 1197:14 | 1125:2 1128:6 | figure 1008:1,14 |
| 1198:9,13,15,16 | 1198:3,17 1199:6 | 1131:14 1133:24 | 1154:2 1189:19 |
| 1198:17,23 | factor 1181:15,17 | february 1001:16 | 1204:7 |
| 1199:1,4,5,7,19 | 1208:14 1210:20 | 1023:8 | filled 1021:1,4 |
| 1200:7 1202:4 | 1211:12 1213:3 | federal 1220:14 | filter 1092:8,23 |
| 1203:18,23,24 | factors 1096:6 | 1222:1,8,9 | 1094:8 |
| 1204:17,23,25 | 1132:3 1179:9 | feel 1158:10,12,23 | filtered 1094:22 |
| 1205:11,13 | 1195:16 1196:18 | 1159:2,10,10 | final 1193:2,2,4,5 |
| 1207:7,22,23 | 1215:10 | 1199:12 | financially |
| 1208:9 1209:8 | factual 1086:19 | field 1004:5,6 | 1220:17 |
| 1210:23 1211:17 | fail 1126:1 | 1018:3 1027:14 | find 1035:20 |
| 1212:15 1215:17 | failed 1126:3,7 | 1037:6 1043:7 | 1036:2 1077:23 |
| 1215:22 1216:16 | fair 1071:7 1147:9 | 1048:4,6 1051:16 | 1107:18,18 |
| 1221:4 1223:1 | 1147:14 | 1051:17,19 | 1110:21 1137:15 |
| facebook's 986:12 | false 1026:19,21 | 1054:25 1055:2,4 | 1174:6 1183:17 |
| 1010:1,5,24 | 1026:23 1030:6 | 1055:6,10,13 | 1215:15,20 |
| 1011:5,22,25 | 1030:25 1031:4,6 | 1056:9,20 | 1216:15 |
| 1012:11,17 | 1031:9,17 | 1057:24 1058:2,4 | fine 1118:5 1140:6 |
| 1013:3,5,8,11 | 1032:10 1036:23 | 1058:7,13 1063:1 | 1140:10 1163:5 |
| 1014:19,21 | 1036:24 1037:6,9 | 1063:14,15,20,21 | 1164:12 1166:3 |
| 1035:16 1038:5,6 | 1037:12,15,19 | 1064:1 1066:11 | finish 1160:4 |
| 1042:4 1044:18 | 1042:22 1043:1,2 | 1066:13 1068:7 | 1161:21 |
| 1051:24 1054:7 | 1043:7 1052:3 | 1069:2 1071:19 | finished 1216:11 |
| 1057:9 1059:15 | | 1078:13,17 | |

HIGHLY CONFIDENTIAL

[finishing - francisco]

| | | | |
|--------------------------|---------------------------|------------------|--------------------------|
| finishing 1162:6 | follow 996:7 | 1084:12 1086:10 | 1203:9,22 |
| first 1001:11 | 997:15 1002:14 | 1088:12,21 | 1204:19 1205:2 |
| 1009:18 1015:4 | 1026:17 1065:21 | 1090:20 1092:4 | 1210:25 1211:20 |
| 1015:17 1017:22 | 1093:10 1138:19 | 1093:21 1095:4 | 1212:11 1215:4 |
| 1018:13 1019:14 | 1206:12 1207:14 | 1097:4,21 | 1215:18 |
| 1021:5 1025:8 | following 1196:21 | 1104:18,21 | formal 1177:11,23 |
| 1026:7,18 | follows 998:15 | 1105:23 1106:12 | 1178:21 1187:11 |
| 1028:18 1033:10 | 1025:3 1221:8 | 1106:18 1107:1 | formalized |
| 1033:20,22,25 | fonti 989:5 995:16 | 1115:9 1116:1 | 1186:24 |
| 1034:9,16,18,22 | 995:20 | 1117:14 1118:22 | format 1049:15 |
| 1035:1 1036:5 | foregoing 1219:2 | 1119:23 1121:17 | 1166:11 |
| 1037:24 1038:4,7 | 1220:5,7,11,13 | 1122:23 1124:2 | forms 1107:25 |
| 1038:16,20,23 | form 1002:24 | 1126:9 1127:3,22 | 1148:18 |
| 1039:15,16,17,21 | 1012:8 1013:14 | 1128:4 1129:9,17 | forth 1015:21 |
| 1041:8,16,18,21 | 1013:21 1015:15 | 1130:18 1131:11 | 1135:18 1220:7 |
| 1042:1,7,10,11 | 1016:16 1017:19 | 1132:14 1133:4 | fortunately |
| 1049:3,24 | 1024:16 1027:13 | 1133:21 1135:12 | 1165:25 |
| 1054:23 1060:21 | 1028:5,17 | 1140:17 1141:8 | forward 1136:7 |
| 1066:2 1070:13 | 1029:12,20 | 1142:11 1143:5 | 1162:18 1164:7 |
| 1075:16 1078:3 | 1032:1 1035:22 | 1143:19 1144:1,8 | found 1107:23,24 |
| 1099:19 1104:11 | 1040:4 1041:3 | 1144:18 1145:4 | 1107:24 1117:5 |
| 1105:13 1109:6 | 1044:4 1051:17 | 1145:12 1147:18 | foundation |
| 1113:22 1117:2 | 1051:18 1052:1 | 1150:1 1151:4,23 | 1197:16 1198:19 |
| 1131:13 1135:14 | 1052:18,23 | 1152:18 1153:1,4 | 1199:10 1209:21 |
| 1137:15 1171:4 | 1053:5 1054:5,19 | 1154:19 1156:1 | 1210:15 |
| 1173:4 1184:22 | 1057:22 1058:14 | 1157:25 1158:20 | four 997:6 |
| 1190:12 1192:14 | 1059:5,14 | 1165:1 1166:11 | 1074:21 1077:11 |
| five 1073:16 | 1060:12,24 | 1167:21 1168:18 | 1138:23 |
| 1110:11 1114:25 | 1061:16 1062:1 | 1169:14 1172:10 | fourth 996:24 |
| 1117:5 1138:3,24 | 1062:16 1063:19 | 1173:1,19 1175:1 | 997:9 1041:15 |
| 1160:4 | 1064:25 1065:8 | 1175:21 1176:4 | 1042:13,14,16 |
| floor 992:8 | 1067:14,22 | 1177:13 1178:8 | fql 1000:23 |
| flow 1049:23 | 1069:11 1070:1 | 1178:17 1179:15 | 1001:11,12 |
| fly 1120:25 | 1070:10 1072:3 | 1179:24 1180:6 | 1002:7,9 |
| focus 1103:11 | 1072:12,23 | 1182:1,8,17 | frame 1123:19 |
| focused 1161:10 | 1074:8,24 | 1183:10 1185:10 | framework |
| 1163:9 | 1075:20 1076:4 | 1187:19 1189:2 | 1178:21 |
| folder 1107:21,25 | 1076:16,18 | 1189:23 1195:22 | francisco 990:10 |
| folks 999:17 | 1077:7 1078:1,13 | 1199:22 1200:4 | 1116:18 1117:3 |
| 1145:18 1148:20 | 1079:2 1081:17 | 1200:12 1201:9 | 1148:2 1170:13 |
| | 1082:2,18 | 1202:14,24 | 1180:25 |

HIGHLY CONFIDENTIAL

[frcp - generally]

| | | | |
|------------------------|--------------------------|---------------------------|---------------------------|
| frcp 1222:1 | friendly 997:18 | function 1027:24 | gate 1119:15 |
| free 1051:17,18 | friends 1009:16 | 1030:17 1060:7 | gated 1002:3 |
| 1078:13 1082:11 | 1009:19,24 | 1060:15 1101:7 | 1097:7 1120:16 |
| friend 1029:6 | 1010:17 1011:20 | functional | 1120:19,22 |
| 1104:25,25 | 1029:3,16 | 1067:17 1077:1 | 1123:20 |
| 1113:15 1114:7,8 | 1093:15,20 | 1082:20 | gatekeeper 1119:9 |
| 1130:15 1143:12 | 1094:20 1104:13 | functionality | 1119:13,14,17,19 |
| 1143:25 1144:17 | 1105:13 1111:11 | 1033:22,24 | 1120:3,6,9,12,16 |
| 1145:2,6 1147:17 | 1112:7 1113:16 | 1125:11 | 1120:22 1121:4 |
| 1149:24 1151:2,7 | 1114:1,24 | further 1136:6 | 1121:15,23,25 |
| 1151:9,16,19,22 | 1117:10 1118:10 | 1160:15,24 | 1124:22,25 |
| 1153:11,24 | 1118:20 1119:1 | 1206:18 1207:13 | 1125:10,11,16,21 |
| 1154:18 1155:15 | 1121:7 1126:8 | 1207:15 1220:13 | 1125:23,23,25 |
| 1160:11,12,19,20 | 1128:16,17,23,24 | 1220:17 | 1126:1,2,6,7,12 |
| 1160:21,25 | 1129:2 1130:8,17 | future 1164:10 | 1126:14,18,21,24 |
| 1161:8,9 1162:19 | 1130:21 1131:3,6 | g | 1132:18,25 |
| 1167:19 1168:9 | 1137:3 1141:6,24 | g 1020:9,20,23,23 | 1133:16,18,22 |
| 1168:14,16 | 1142:10 1154:23 | 1021:3 1095:12 | 1134:2,7,17,19,25 |
| 1169:1,3,12 | 1155:20,22 | 1095:15 | 1135:6,10 1136:1 |
| 1180:18 1185:1,5 | 1158:6 1179:19 | gain 1053:11 | 1136:11,13 |
| 1188:25 1189:7 | 1181:11 1190:25 | 1120:3 | 1206:13 1207:19 |
| 1189:22 1190:2,7 | 1191:8,8,17 | garrie 992:5 996:1 | 1207:24 |
| 1190:10,13,20 | 1194:12 1195:6 | 996:2 998:22,25 | gatekeepers |
| 1191:10 1192:12 | 1197:13 1198:2 | 999:1 1101:24 | 1122:2 1125:5,13 |
| 1192:15,18,18,22 | 1198:17 1199:6 | 1102:2,4,7 | 1126:8 1133:12 |
| 1192:23 1193:21 | 1201:20 1208:15 | 1107:17,23 | 1133:14 1206:22 |
| 1193:25 1194:4,5 | 1208:22 | 1109:17,21 | 1207:20,23 |
| 1194:7,11,14,16 | front 1004:9,10 | 1110:4,8,18 | gatekeeping |
| 1194:17,19,22,24 | ft 1087:12 | 1135:15,22,24 | 1127:6 |
| 1194:25 1195:3 | ftc 1022:19,21,23 | 1136:17 1137:7 | gates 996:21 997:7 |
| 1195:10,17 | 1023:2 1086:7,9 | 1156:8,20,24 | 997:21 |
| 1196:19 1199:20 | 1086:13,18 | 1157:9 1159:15 | gating 1035:6 |
| 1200:10,22,22 | 1087:10,12,15 | 1159:17,20 | 1122:13 1125:1 |
| 1201:5,6,17 | full 1047:20 | 1160:8,9 1161:4 | 1127:17 |
| 1202:11,20 | 1072:21 1092:2 | 1162:8 1163:4,21 | general 992:16 |
| 1203:21 1204:12 | 1092:22,22 | 1163:25 1164:24 | 1028:2 1074:18 |
| 1205:15 1207:5,9 | 1094:18 1150:5 | 1166:3,9,16,25 | 1122:18 1174:21 |
| 1208:8 1209:15 | 1150:14 1211:14 | 1167:7,9 1211:24 | 1177:7 |
| 1211:10 1213:5 | fully 1056:24 | 1213:19 1217:17 | generally 1016:6 |
| 1216:7 | 1142:23 1153:6 | 1217:19,22 | 1089:24 1105:21 |
| | 1155:7 1214:6 | 1218:1,5,13 | 1122:20 1164:8 |

HIGHLY CONFIDENTIAL

[generally - half]

| | | | |
|--|--|---|--|
| 1205:22 generate 1056:10 generated 1028:10 1057:12,19 1074:23 1075:5,6 1075:9,11 1091:7 1177:12,23 1211:16 gestation 1034:12 getting 1028:4 1149:1 1197:12 1198:1,15 1199:5 gibson 990:5 991:5 995:22 1217:19 gibsondunn.com 990:12,20 991:12 991:19 give 1024:5 1035:18 1040:11 1077:12 1085:18 1086:14 1087:6 1110:20 1117:18 1120:24 1169:10 1190:22 1216:2 given 1003:16 1009:5 1017:7 1024:25 1050:11 1053:11,25 1062:20 1064:1 1079:7 1097:24 1101:7 1112:3,12 1159:11 1199:13 1202:8 1206:23 1217:14 1220:12 giving 1159:10 1199:12,24 1211:9,9 go 1015:12 1023:20 1025:22 1032:22 1036:1,4 | 1046:13 1048:7 1056:1,1 1060:13 1073:10 1086:12 1090:1,15,22 1093:4,17 1094:18,22 1095:5,25 1097:16 1101:11 1102:9,11 1104:22 1105:4 1111:20 1113:7 1114:19 1124:3 1133:5 1134:4 1135:16 1137:14 1139:6 1146:17 1148:1 1158:3 1159:18 1164:9 1167:1,4,8,9 1172:16 1178:12 1186:17 1189:24 1206:2 1215:15 1216:15 1218:8 1218:11,21 goes 1025:25 1040:20 1088:11 1110:19 1134:2 1134:19,23 1166:12 1172:2,8 going 997:12 999:2 1010:13,19 1012:4 1023:21 1028:16 1029:5 1032:13 1033:11 1046:10 1064:2 1065:21 1066:17 1073:15 1092:15 1102:5 1103:8,14 1108:24 1109:21 1109:22 1110:10 1134:12 1135:4 1135:16 1136:7 | 1137:25 1138:12 1138:18 1139:21 1145:20 1146:19 1158:3 1160:1,3 1172:16 1216:8 good 995:15,21 996:3 1046:10 1110:6 1139:15 1139:16 1148:25 governed 1061:20 1122:8 gracefully 1162:11 grant 1000:6 1001:23,25,25 1004:15,21 1083:14 1096:4 1124:12 1181:22 1187:16,18 1204:1 1210:8 1211:13 1213:4 grantable 1038:19 1038:22 1041:25 granted 1009:16 1009:19 1010:17 1011:20 1021:13 1032:20 1036:12 1037:2 1039:4 1041:25 1052:2 1057:10 1059:23 1062:21 1084:17 1091:18 1092:3 1097:2,19 1131:2 1153:19 1161:14 1168:4 1173:15 1185:20,23 1187:3 1208:15 1210:18 granting 1172:2 grants 1033:8 1034:5 1064:17 | 1065:12 1091:12 graph 1027:12 1029:17 1120:18 1127:14,20 1128:3,10,11 1129:11,13 1130:3 1131:10 1131:16,23 1132:10,12 1137:1,2 1144:22 gray 1162:11 great 999:15 1000:1 1110:16 1110:21 group 1017:5,8,22 1023:4 1032:15 1032:17,25 1033:5,6,21,24 1034:3,4,9 1036:11 1037:1 1067:16 1077:1,2 1077:4,6,11,18,21 1077:24 1082:20 1084:6 1085:16 1088:11,15 1117:20 1143:16 1150:13 1192:4 groups 1084:22 1191:11,25 guess 1167:10 guidance 1085:3 guy 1217:24 guys 1101:24,25 h h 993:11 994:1 1021:7 1095:12 1112:22 1171:6 1223:3 half 1046:11 1092:15 |
|--|--|---|--|

HIGHLY CONFIDENTIAL

[handled - immediate]

| | | | |
|---|---|--|---|
| handled 1039:4,6 1182:10 1221:8 hannah 991:6 995:24 happened 1127:5 1127:7 1190:16 happens 1166:17 happy 997:24,24 1004:14 1090:3 1109:8,11 1113:3 1113:12 1136:14 1136:21 1137:5 1139:3 1217:11 hard 1085:17 1112:20 1120:24 1120:24 1142:5 1142:15 1183:21 1185:12 1188:8 1194:1 head 1047:19,21 1071:5 1170:14 header 1012:4 1016:3 1017:25 1020:9 1021:7 1025:10 1026:9 1036:6 1038:15 1044:22 1045:7 1048:7,18 1049:16 1065:24 1078:5 1082:8 1083:7 1086:3 1089:4 hear 1029:8 1102:3,6 1158:4 heard 1044:9 1114:12,15,17 1137:8 1160:7 hearing 1069:5 help 1034:17 1052:24 1088:14 1114:2 1116:7 | 1122:24,24 1143:20 1153:21 1177:8 1184:3 helpful 999:3,19 1071:25 1116:9 1195:25 helping 1212:19 hendrix 1156:7 hereto 1007:7 1101:19 1107:13 1111:4 1116:13 hesitate 1195:24 high 1020:15 1021:11 1038:8 1038:10,13 1040:7 1050:4,7 1069:25 1070:5 1075:18 1076:2,8 1076:9,12,13,14 1093:9 highest 1070:5 highlighted 1016:23 highly 986:11 1218:17 historical 1064:12 1065:6 1066:4 1132:24 historically 1054:3 history 1084:19 hits 1119:4 hive 1099:8,9,11 1099:17 hoc 1111:11 1114:1 hole 1137:15 hoped 1109:10 1110:17 hopefully 1139:17 | hour 1046:11 1092:15 hours 1110:21 housekeeper 1167:5 housekeeping 1217:13 hregan 991:12 huang 1101:23 1102:20,21 huh 1055:21 1105:7 hundreds 1016:17 hypothetical 1130:24 i i.e. 1064:12 1096:12 ian 992:16 995:23 idea 1134:18,22 identifiable 1076:8 identification 1007:6 1101:18 1107:12 1111:3 1116:12 1214:2 identified 996:9 996:11,22,25 997:8,10,21 1000:15 1007:11 1014:11 1050:19 1068:1 1090:6 1108:7 1109:7 1113:1,4 1115:11 1116:14 1136:24 1145:16 1160:21 1161:3 1172:18 1184:25 1190:1 1191:7,13 1207:22,23 1209:1 | identifies 1016:24 1017:1,21 1089:11 1097:6 identify 995:13 996:4 1014:23 1058:17 1060:4 1065:10 1090:17 1090:22 1092:2,7 1092:24 1093:7 1094:7,20 1104:24 1109:1 1111:21 1121:5 1125:25 1126:2,6 1129:1 1131:1 1132:11 1135:25 1141:5,11,23 1143:1,11 1147:16 1151:1 1151:15,20 1171:8 1185:4,7 1186:21 1189:21 1204:25 1210:23 1211:1,16,22 1212:3 identifying 997:5 1132:17 1184:9 identity 1018:15 1019:18,20 ids 1000:11,14 1014:25 1062:20 1093:4 1094:24 1095:7 1120:1 1133:13 1206:23 imagine 1025:2 1090:14 1098:22 ime 1116:17 1117:3 1145:25 1148:2,7 1170:12 1180:23,24 immediate 1027:23 |
|---|---|--|---|

HIGHLY CONFIDENTIAL

[impact - information]

| | | | |
|---|---|--|--|
| impact 1176:6,7 1176:23 1180:11 1209:25 1210:19 1210:20 1213:1 implementation 1062:15 implemented 1064:16,21 1101:5 implements 1019:7 implications 1175:3,24 important 1040:7 1042:2 1093:23 1095:20 1096:8 1098:14 1128:20 1151:6 1177:8 importantly 1137:21 improved 1054:21 1080:6 inception 1079:22 1188:20 include 1120:7,17 1130:13 1136:19 1153:23 1176:2 included 1081:21 1081:25 1119:12 1129:12 1130:6 1132:19 1133:14 1141:19,20 1154:22 1179:10 1193:17 1215:7 1215:10,12 1221:14 1222:3 includes 1053:18 1102:19 1188:14 including 1132:3 1184:12 1188:18 1191:10 | incorrect 1109:4 independent 1086:19 indicate 996:14 1020:6 1036:15 1039:18 1047:14 1052:4 1062:23 1063:16 1092:10 1093:1 1095:7,12 1095:15 1113:17 1198:9 1199:1 indicated 999:22 1002:10 1006:14 1030:15 1037:9 1052:3 1055:23 1059:2 1063:22 1067:20 1070:9 1071:16 1074:2,7 1088:10 1113:10 1140:1 1162:15 1188:23 1190:7 1197:6 1206:14 1214:15 1215:1 indicates 1004:25 1005:16 1008:20 1018:4 1030:6 1033:1 1034:15 1034:21 1038:21 1043:1 1047:23 1048:1,4,5 1049:6 1074:3 1075:18 1076:12 1111:9 1112:7 1118:16 indication 1003:16 1072:19 indicative 1008:22 1105:3 indicator 1112:15 individual 1009:8 1014:5 1019:20 1048:15 1061:24 | 1077:20 1079:15 1093:14 1127:19 1130:15,20 1135:2 individual's 1026:2 individually 1134:21 individuals 1077:17 1209:1 1210:10 1212:6 1213:11,24 influence 1096:6 info 1105:14 inform 1104:14,15 informa 1133:2 information 996:5 996:16,16 998:6 1001:21 1002:9 1009:22,25 1010:13,15,22 1012:7,9,16 1013:25 1014:1 1014:10 1018:7 1020:2,11 1021:14,16,22 1022:2,18 1024:5 1024:21 1025:12 1026:4 1033:17 1034:24 1035:8 1036:3 1039:7 1050:15 1055:11 1057:3,14 1058:10 1063:7 1063:25 1064:23 1065:6,23 1073:2 1073:5 1074:19 1076:8 1078:9,19 1078:21,24 1081:21,24 1082:6 1085:13 | 1085:14,19 1086:24 1087:1 1088:25 1095:23 1098:2,7,10,13,16 1098:16,18,21,24 1099:1,4,12,15,22 1099:23 1100:3 1100:15,19,23 1103:22,24,25 1104:6,14,15 1106:11,15,16,20 1106:22,23 1111:22 1112:1 1114:3 1116:9 1118:1 1120:7,10 1120:12 1121:15 1122:4,19 1124:13,22 1125:7,8,14,21,22 1126:15,20,23,25 1132:21,25 1133:7,14 1134:2 1134:14,15,22 1135:6,9 1136:11 1136:25 1137:10 1141:12,15 1143:10,14 1151:12 1152:17 1152:25 1153:12 1153:21 1154:23 1154:25 1155:11 1155:20 1158:14 1168:5,22 1179:18,19 1186:13 1189:10 1191:3 1192:3 1194:8,9,23 1195:10 1197:7 1199:20 1200:10 1200:22,22 1201:17,20,25 |
|---|---|--|--|

HIGHLY CONFIDENTIAL

[information - keeps]

| | | | |
|---|--|--|---|
| 1202:11,20 1203:4,8 1204:17 1206:15,25 1207:3,6,10 1209:16 infrastructure 1011:6 initiated 996:9,14 inquiry 1096:23 1141:21 inside 1016:6 1119:14 install 1152:5 1154:7 installed 1151:21 1155:23 1158:7 instance 1005:13 1006:13 1021:6 1025:9 1027:10 1036:5 1041:8 1059:24 1070:13 1075:17 1078:3 1099:20 1108:17 1127:20 1135:14 instances 1054:2 instituted 1187:12 institutional 1148:9 integrated 1061:10,12 1064:9,11,22 1065:4 integration 1064:24 1149:2 1149:20 1204:4 1210:6 integrations 1149:7,14,15 1193:14 1197:1 1215:25 | intend 996:18 intent 1084:8 interaction 1152:13 interchangeably 1016:2 interest 999:3,17 1110:10 1162:5 1195:25 interested 1008:21 1094:8 1220:18 internal 1010:1,2 1010:6 1037:21 1042:4 1057:21 1060:2 1136:2 1210:23 internally 997:2 1015:11 1061:14 1211:16 interpret 1159:4 interpretation 1037:16 interrupt 1139:23 1175:14 interrupted 1096:9 interrupting 999:2 1108:1 introduce 1145:20 introduced 1003:6 1007:9 1027:11 1045:11 1082:23 1083:15,21 1107:14 1111:5 1128:11 1130:4 1186:19 inventory 1061:18 investigate 1168:16 1170:1 1171:15 1172:17 | investigated 1169:16 investigating 1142:8 investigation 1141:14 1168:7 1168:15 1215:14 1216:13,19 invitable 1190:24 1191:7 involved 1014:9 1023:14,16,18,24 1024:3,4 1045:23 1045:25 1046:4 1050:14,20,25 1065:19 1077:10 1077:14,17,20,24 1094:2 1098:1 1128:14 1129:14 1133:12 1143:8 1144:3,5,11,14 1145:15 1170:2 1170:15,21,24 1171:19 1178:10 1180:8,12,17 1190:1 1210:5,17 1211:7,8 1212:14 1215:23 involvement 1100:6 ios 1197:4 issue 999:5 1017:23 1160:25 1217:10 issues 997:17,25 999:4,7,8,10 1017:18 1139:1 1159:23 1163:18 item 1217:13 | j j 1005:6,7,13 1006:15 1018:24 1025:10 1026:2,5 jackie 1205:11,16 1205:17 jams 992:4 jamsadr.com 992:11 january 1049:4,6 1049:10 1193:3,5 1193:10 job 986:24 1188:6 john 992:18 995:10 joined 995:23 jsc 986:4 987:4 jump 1007:3 1139:18 june 986:16 987:18 995:1,6 1102:19 1113:9 1115:11 1116:18 1118:25 1120:13 1121:6,16 1136:25 1148:3 1220:23 1221:3,5 |
| | | | k |
| | | | k 989:7 1006:4,17 1026:9,19 1027:9 1030:25 1031:11 keep 1023:20 1136:7 1137:13 1137:21,24 1139:21 1152:4 1164:7 1166:13 1183:25 1215:25 keeps 1152:9 1184:10,13 |

HIGHLY CONFIDENTIAL

[keller - likes]

| | | | |
|---|--|--|---|
| keller 988:5 995:18 kellerrohrback.c... 988:15,16,17,18 kept 1121:22 1143:3 1205:5 key 1150:15 kind 1045:12 1051:16 1099:4 1103:11 1129:13 1163:15 1182:20 knew 997:23 know 997:20,24 998:1 1009:2 1012:6 1014:24 1016:12,19 1018:3,9,15 1020:22 1021:2,9 1021:17,21 1022:8,10,21,23 1022:25 1023:5,9 1023:11,13,15,23 1023:25 1024:7 1024:15,23 1025:4,5 1026:21 1028:1 1030:8,24 1031:10,25 1033:11 1034:6 1034:11,13,14,20 1035:8,14 1037:10 1039:13 1042:2 1045:14 1045:16,18,23,25 1047:3,4,17 1050:10,17,24 1051:5,8,13 1056:5,17 1059:21 1064:10 1068:25 1070:4 1072:1 1074:12 1074:16 1075:6 | 1077:16,16 1078:18,22 1084:4 1085:13 1085:16 1087:9 1088:3,9,17 1098:9,12,20,24 1099:11,13,16 1102:2 1103:25 1107:5 1108:5 1109:8 1111:20 1112:9,10,17 1115:3,6 1129:19 1134:1 1138:24 1139:1 1145:14 1149:17,18,21 1152:3,23 1159:4 1160:3 1161:10 1162:2 1163:18 1163:24 1164:13 1167:3 1169:15 1179:22 1180:2 1183:12 1185:12 1193:5,12 1204:13,20 1205:23 1213:1 1217:6 1218:5 knowledge 1086:19 1135:18 1148:9 1208:16 1208:17,18 knowledgeable 1150:8,18 1212:17 known 1049:14 1060:17 knows 1153:10,17 1154:3,5,6,8,10 1154:17 1155:15 kogan's 1155:21 1158:5 | konstantinos 1102:23 kp 1103:23 1148:7 1150:7,15,21,24 l l 986:21 987:20 1032:14 1033:1 1033:17,19 1171:5 1220:1,24 l.l.p. 988:5 labeled 1009:12 lack 1148:9,11 lackman 1101:23 1102:21 lacks 1197:16 1198:19 1199:10 1209:20 1210:14 lama 1044:10,19 lamas 1044:14 language 1126:4 1218:6 large 1129:18 late 1100:8 laufenberg 988:7 launch 996:24 997:9,23 1044:7 1044:10,13,16,17 law 988:10 989:9 990:7,15 991:7,15 1164:22 lead 1081:3 1194:19 learn 1171:7 learned 1086:17 leave 1110:21 1140:2 1205:13 1205:18,21,22,22 1205:24 1206:1 led 1195:16 1196:18 | left 1100:17 legacy 1002:3 legal 1015:4 1051:24 1052:6,7 1052:10,14 1053:10 1059:15 1061:2,18 1062:3 1062:6,11,18 1079:4,11,12,15 1085:2,10 1088:7 1221:7 lesley 989:8 level 1020:15 1021:11 1035:12 1035:14,20 1038:8,10,13 1040:7 1050:4,7 1066:22,23,24 1067:4,6,9,19 1068:1,6,8,12 1069:10,21,25 1070:8,22 1071:18,21 1072:2,20 1074:15 1075:22 1076:15 1085:18 1093:9 1137:9 1168:1 levels 1067:7,12 1068:16,19,20,23 1069:1,6 1071:13 1071:16,22 1072:7,10 1073:5 1073:9,19 life 1114:11,13,16 1114:25 1115:4,7 1115:16,19,23 1155:23 1158:8 light 1006:1 likes 1129:3 1191:16 |
|---|--|--|---|

HIGHLY CONFIDENTIAL

[limit - low]

| | | | |
|-------------------------|---------------------------|------------------------|---------------------------|
| limit 1189:10 | loeser 988:6 993:6 | 1189:5 1190:5 | 1026:15 1027:24 |
| limited 1187:22 | 993:8 1110:19 | 1191:4,6,7 1196:3 | 1030:17 1076:21 |
| 1187:25 | 1138:18 1139:14 | 1196:6,10,14,16 | 1100:3 1129:21 |
| linchpin 1148:8 | 1139:24 1140:5 | 1197:21 1198:11 | 1173:25 1190:10 |
| 1150:17 | 1140:12,20 | 1199:2,18 1200:2 | 1191:17 1200:23 |
| line 1074:25 | 1141:3,13,22 | 1200:9,16 | longevity 1060:5 |
| 1104:10 1114:19 | 1142:7,17 1143:9 | 1201:15 1202:19 | look 1003:15 |
| 1221:15 1222:4 | 1143:23 1144:6 | 1203:5,18 1204:6 | 1009:1,11 |
| 1223:4,7,10,13,16 | 1144:15,21 | 1204:24 1205:10 | 1020:20 1024:18 |
| 1223:19 | 1145:10,20,23 | 1206:2 1207:14 | 1026:18 1040:24 |
| linear 1071:21 | 1146:8,11,17,24 | 1207:16 1209:6 | 1055:25 1060:3 |
| link 1105:8 | 1147:5,25 | 1209:22 1210:12 | 1061:23 1062:12 |
| list 1001:18 | 1148:23 1150:6 | 1210:22 1211:1 | 1087:17 1093:6 |
| 1002:8 1032:17 | 1150:20 1151:8 | 1211:15 1212:5 | 1103:2 1104:10 |
| 1032:18 1088:17 | 1152:4,22 1153:2 | 1213:6,23 | 1111:14 1113:3,6 |
| 1091:5 1093:18 | 1153:8,23 | 1215:13 1216:8 | 1113:11 1143:11 |
| 1094:6 1106:14 | 1154:17,25 | 1216:21 1218:8 | 1143:13 1146:4 |
| 1112:25 1145:10 | 1155:5 1157:12 | 1218:20 | 1147:9,25 |
| 1145:14 1147:22 | 1157:13 1158:5 | log 1000:8,10 | 1163:22 1167:2 |
| 1155:13 1185:19 | 1158:17,25 | 1019:24 1020:2,5 | 1172:12 |
| 1185:22 | 1159:21,24 | 1088:10 1098:15 | looked 1004:7 |
| listed 1002:6 | 1160:7,10 | 1099:22 1149:7 | 1007:15 1020:3 |
| 1005:9 1091:13 | 1161:18,21,22 | logged 1044:2 | 1093:16 1094:11 |
| 1095:13 | 1162:4,10,22,23 | 1098:8,10,23,25 | 1116:22 1141:14 |
| lists 1205:4 | 1162:24 1164:3 | 1100:14 1115:16 | 1168:20 1169:10 |
| litigation 986:4 | 1164:12 1165:25 | 1115:18,22 | 1209:25 |
| 987:4 995:9 997:9 | 1166:5,14,15,24 | 1154:24 1155:1 | looking 1034:15 |
| 1221:4 1223:1 | 1167:16 1168:2 | logging 1098:13 | 1053:15 1057:12 |
| little 1004:19 | 1168:24 1169:19 | 1101:1 1121:22 | 1078:20 1093:5 |
| 1033:4 1110:15 | 1171:22,24 | logs 1152:19 | 1105:1,3 1107:24 |
| 1140:4 1189:13 | 1172:14 1173:7,8 | 1154:14 | 1113:8 1118:6 |
| 1193:24 | 1173:22 1175:7 | london 986:15 | 1121:12 1141:19 |
| llp 989:5 990:5 | 1175:13,17 | 987:17 995:1 | 1148:4 1168:25 |
| 991:5 | 1176:1,9 1177:22 | long 1015:21 | 1173:13 |
| local 1000:11 | 1178:14,23 | 1016:24 1113:20 | los 992:9 |
| located 987:16 | 1179:4,22 1180:2 | 1113:20 1139:18 | lose 1172:8,23 |
| 1073:7 | 1180:14 1182:5 | 1146:9 1160:23 | 1174:24 1175:18 |
| location 986:15 | 1182:13,22 | 1163:9 1212:14 | 1176:2,17 1177:1 |
| locked 1221:12 | 1183:8,16 1184:6 | 1217:6 | lot 1042:4 1137:17 |
| 1222:1 | 1185:18 1186:10 | longer 1003:12 | low 1068:6 1069:3 |
| | 1186:23 1187:25 | 1010:20 1018:1 | 1069:21,23 |

HIGHLY CONFIDENTIAL

[low - means]

| | | | |
|--|--|---|--|
| 1070:22 1071:13 1072:5 lowest 1069:21,24 lweaver 989:16 | manual 1003:3,4 manufacturers 1149:11 mapping 1011:8 march 1005:15,18 1190:18 1192:16 1192:20 1193:9 marked 994:10 1007:5,8,9 1016:7 1028:22 1030:21 1091:11 1101:17 1101:21 1102:17 1107:11,15 1111:2,6 1116:11 1116:15 1146:9 1146:25 1147:1,3 1171:25 master 992:6 996:1,2 998:22,25 999:1 1101:24 1102:2,4,7 1107:17,23 1109:17,21 1110:4,8,18 1135:15,22,24 1136:17 1137:7 1139:3 1156:8,20 1156:24 1157:9 1159:15,17,20 1160:8,9 1161:4 1162:8 1163:4,21 1163:25 1164:24 1166:3,9,16,25 1167:7,9 1190:12 1211:24 1213:19 1217:17,19,21 1218:1,5,13 maternity 1205:13 matt 990:14 995:16,25 997:18 997:19 1103:10 | 1136:22 1138:23 matter 995:8 1015:9 1173:9 matthew 989:6 maximum 1164:23 1166:10 mbuongiorno 990:20 md 986:4 987:4 mdl 986:3 987:3 993:15,18,22,25 994:6,7 1007:10 1102:24 1107:16 1108:3 1111:7 1116:16 mdl002898668 993:19 mean 997:3 1005:23 1006:9 1006:14 1009:20 1012:12 1013:11 1016:5 1020:14 1020:17,24 1022:15 1023:20 1025:18 1026:23 1026:25 1027:8 1027:23 1029:25 1032:16,23 1034:17 1036:8 1036:16,25 1037:15,22 1038:17 1039:7 1039:16,19 1041:20 1042:18 1042:23 1043:8 1043:11,15 1044:15,23 1045:9 1047:6,8 1048:9,20 1049:18 1051:22 1052:10 1066:1 | 1066:19 1068:4 1069:9,16 1071:12 1072:11 1078:7 1079:15 1082:9 1083:9 1084:5 1085:9 1086:5 1087:19 1088:15 1089:5 1093:25 1095:21 1097:25 1099:7 1099:10 1101:2 1109:5,9 1110:3 1112:11 1113:6 1114:6 1117:12 1117:17 1124:20 1125:19 1129:7 1133:10 1135:3 1151:6 1154:20 1163:2,14,19 1164:13 1165:9 1167:2 1169:4 1175:14 1181:18 1181:20 1182:2 1182:12,18 1184:4,19,22,23 1184:24 1194:21 1214:22 meaning 1012:12 1028:13,15 1031:4 1047:22 meanings 1051:7 means 1014:1 1020:22 1021:9 1026:11,21 1028:11,20,21 1030:1 1032:25 1036:9 1037:10 1038:25 1039:2 1039:10,13 1040:3 1041:17 1042:20 1043:3 |
| m | | | |
| m 1036:6,15,21 1037:9,13,15 1171:6 macdonell 992:18 995:10 machine 1220:10 maintain 1185:16 maintained 1038:9 1185:24 1185:25 maintaining 1089:9,12 making 1003:17 1023:20 1028:1 1044:8 1094:3 1097:25 1210:21 1211:13 1214:16 1215:7 1218:18 manage 1061:3 1062:7 1208:2 managed 1039:1,2 1042:6 1061:18 1195:5 1207:4 management 1012:13,15,17 1013:4,5,9,12 1014:14,19,22 manager 996:24 997:9,23 1044:7 1044:10,13,16,17 1136:1 manages 1044:17 1212:15 managing 1042:3 1089:20 1144:3 1195:6 | | | |

HIGHLY CONFIDENTIAL

[means - misunderstood]

| | | | |
|------------------------|------------------|-------------------------|--------------------------|
| 1043:14,17 | 1014:3 1015:20 | 1110:6,14,23,24 | 1114:1 |
| 1045:6 1050:6 | 1016:22 1017:25 | 1111:5,12 | metadata.xls |
| 1051:5,9 1052:5,7 | 1024:23 1027:18 | 1112:24 1113:3 | 1113:16 |
| 1068:6 1074:16 | 1028:13,25 | 1113:13 1115:15 | metadata.xlxs. |
| 1075:7 1076:2 | 1029:15 1030:3 | 1116:6,14,20,25 | 1111:11 |
| 1087:8,20 1088:1 | 1032:11 1035:25 | 1117:24 1118:24 | method 1020:16 |
| 1112:9,10,17,21 | 1040:11 1041:4 | 1120:6 1121:25 | 1096:25 1097:5,7 |
| 1149:16,17 | 1044:9 1046:9,13 | 1123:3 1124:5 | methods 1097:7,8 |
| 1194:6 1200:17 | 1046:19 1053:1 | 1126:15 1127:11 | 1129:23 |
| meant 1041:2 | 1053:13 1054:13 | 1128:1,8 1129:25 | migrate 1126:20 |
| 1045:14,16 | 1054:25 1057:1 | 1130:23 1131:21 | 1127:5 1199:25 |
| 1051:11 1066:23 | 1058:1,19 | 1132:23 1133:9 | 1202:9 1206:21 |
| 1070:7,18 1071:4 | 1059:11,18 | 1134:1,9 1135:15 | 1207:17 1216:3 |
| 1072:20 1073:12 | 1060:16 1061:5 | 1135:19,23 | migrated 1136:12 |
| 1076:9,14 | 1061:22 1062:11 | 1136:3,18,23 | 1136:13 1206:24 |
| 1149:20 1194:22 | 1062:22 1064:2 | 1137:22,22 | 1206:25 1207:18 |
| mechanism | 1065:1,20,24 | 1138:2,10 1139:5 | 1207:25 |
| 1066:5 1122:13 | 1067:20,23,25 | 1147:7 1161:13 | migration 1133:12 |
| 1122:16,19 | 1069:16 1070:6 | mellon 1101:22 | 1144:4 1206:15 |
| 1123:8 1124:17 | 1070:14 1072:8 | 1102:20 | 1206:18 1208:1 |
| 1125:1 1132:19 | 1072:18 1073:7 | members 1023:9 | migrations 1127:5 |
| 1187:12 | 1074:11 1075:3,4 | 1079:11 | 1127:8,9 |
| mechanisms | 1075:24 1076:11 | memory 1004:11 | mill 991:16 |
| 1127:17 1142:21 | 1076:23 1077:15 | 1073:15 | mind 1137:13 |
| media 1141:1 | 1078:4 1079:8 | mentioned 1000:6 | 1166:13 1194:18 |
| mediation 999:6 | 1081:24 1082:7 | 1001:11 1063:23 | minimize 1216:1 |
| 999:12 | 1083:1 1084:19 | 1073:18 1081:18 | minimum 1039:12 |
| meet 999:4 | 1087:9 1088:16 | 1083:17 1102:22 | 1136:6 1164:23 |
| 1021:12 1136:21 | 1089:3,22 1090:4 | 1121:2 1144:25 | 1166:10 |
| 1137:19 1138:25 | 1090:5 1091:2 | 1210:2 1216:7 | minute 1110:11 |
| meets 1024:21 | 1092:16 1094:10 | merely 1007:16 | 1138:3 1146:4 |
| mehta 1170:23 | 1095:11 1097:14 | message 993:17 | minutes 1090:1 |
| 1171:3,5,7 1209:1 | 1098:9 1101:11 | 1101:21 1102:18 | 1103:5 1167:10 |
| melamed 989:6 | 1101:20 1102:4,5 | 1102:25 1103:20 | missing 1093:11 |
| 993:5 995:15,16 | 1102:11,17,25 | 1108:12 1148:2 | mission 990:8 |
| 996:3 997:18 | 1103:13,14 | met 1077:21 | misstate 997:3 |
| 998:11,17,24 | 1105:4 1106:1,16 | meta 992:17 | misstates 1209:3 |
| 999:20,21 1003:7 | 1106:23 1107:5 | 995:23 1120:3 | misstating 996:18 |
| 1007:8,19,23 | 1107:14,20 | metadata 1072:16 | misunderstood |
| 1008:3,5,12,16,17 | 1108:2,5,24 | 1072:21 1111:8 | 1123:9 |
| 1012:12 1013:17 | 1109:7,13,19 | 1113:14,24 | |

HIGHLY CONFIDENTIAL

[mmelamed - number]

| | | | |
|-------------------------|--------------------------|--------------------------|--------------------------|
| mmelamed 989:14 | 1163:5,7,23 | near 1160:3 | night 1216:12 |
| mobile 1197:3 | 1164:6 1176:13 | necessarily | 1217:8 |
| modification | moving 1016:3 | 1013:11,16 | non 1083:8 |
| 1076:13 1096:22 | 1136:15,15 | 1025:14 1042:23 | 1091:23 |
| modified 1097:13 | 1162:4,4,13 | 1068:13 1069:24 | non30 1165:3 |
| 1208:4 | 1164:7 | 1070:5 1071:21 | nonadhoc 1113:15 |
| modifies 1020:18 | mul 1145:8 | 1071:23 1079:15 | nonapp 1201:17 |
| 1123:17 1124:10 | multiple 1145:8 | 1081:13 1084:4 | 1202:20 |
| modify 1032:19 | mute 1191:5 | 1093:25 1095:22 | nonpermissible |
| 1125:12,14 | mutual 1162:5 | 1098:15 1130:22 | 1084:1,2,9,16,20 |
| 1207:20 | mysql 1011:13 | 1150:3 1154:23 | 1084:23 1085:21 |
| modifying | n | 1188:22 1215:10 | nonpublic 1163:1 |
| 1122:16 1123:15 | n 993:1 1037:20 | necessary 1137:11 | nope 1006:24 |
| molaro 1021:5 | 1038:1 1048:24 | 1139:2 1221:14 | normal 1215:11 |
| 1025:8 1041:7 | 1111:10,10 | 1222:3 | northern 986:2 |
| 1070:13 1075:16 | 1113:25,25 | need 1007:21 | 987:2 |
| 1078:3 1099:19 | name 1004:5,6 | 1012:21 1035:2 | notate 999:9 |
| 1135:14 | 1009:13,15 | 1036:18 1081:3 | notating 1221:15 |
| molly 1117:4 | 1010:1,3 1011:20 | 1137:12 1138:12 | 1222:4 |
| moment 1003:5 | 1046:7 1089:4 | 1160:4,23 | note 998:3 1027:9 |
| 1172:12 | 1090:24 1099:14 | 1165:18 1167:4 | 1065:20 1093:23 |
| momentarily | 1111:10 1112:4 | 1176:14 1185:6 | 1095:21 1096:8 |
| 1145:22 | 1114:20 1118:13 | needed 1058:18 | 1164:19 |
| money 1182:6,15 | 1171:2,4 1220:21 | 1081:23 | noted 1045:24 |
| 1182:19 1183:1 | names 1010:6 | needs 1052:1 | 1136:24 1137:24 |
| 1184:1,11 | 1023:13,15,18 | 1096:19 | 1156:21 1218:24 |
| 1215:16 1216:15 | 1024:2 1050:24 | negative 1140:14 | notes 1004:10 |
| 1216:19 | 1069:5 1077:10 | 1140:22 | 1037:20 1219:4 |
| monica 1172:1 | 1077:13,16 | neither 1040:12 | notice 1160:13,22 |
| morning 995:15 | 1170:13 1181:1 | 1220:17 | 1161:5 1164:21 |
| 995:21 996:3 | 1209:10 | net 1171:12 | 1171:12 |
| 1093:6 1094:12 | naming 1010:2 | netflix 1059:25 | noting 1173:5 |
| 1139:15 | nana 1111:10 | 1060:3,5 | 1216:23 |
| mosseri 1172:1 | 1113:25 | nevada 986:22 | null 1022:5 |
| 1173:23,24 | narrative 1018:1 | new 1007:23 | 1031:11,17,22 |
| 1212:24 | narrow 1162:3 | 1008:11 1025:23 | 1041:15 |
| motion 1159:16 | 1163:11 | 1026:1 1169:8 | number 993:12 |
| 1164:8,9 | native 993:14,21 | 1172:9 1192:2 | 994:2,11 997:1 |
| move 1116:10 | 993:24 1210:5 | 1202:21 1217:24 | 1007:10 1009:2,2 |
| 1137:23 1160:17 | nature 1194:10,13 | newsfeed 1192:25 | 1014:16 1017:8 |
| 1162:18,18 | 1194:25 | | 1017:12 1019:3 |

HIGHLY CONFIDENTIAL

[number - okay]

| | | | |
|--|--|--|--|
| 1020:24 1026:2 1028:19,19 1029:21 1049:2,6 1049:9 1050:13 1050:16 1051:6 1051:12 1061:3 1068:22 1080:21 1089:10 1094:21 1102:24 1111:24 1112:7,11 1114:8 1114:23 1115:13 1115:15,17 1120:4 1125:17 1128:12 1129:18 1131:14 1132:2 1140:18 1141:10 1142:3,20 1144:5 1151:11 1152:12 1158:2 1170:2,14 1171:18 1180:25 1181:23 1182:14 1182:25 1187:23 1190:6 1191:9 1196:24 1197:14 1198:3,18 1199:7 1207:19 1211:4 1221:15 1222:4 numbers 1068:21 1068:25 1070:7 1071:4,16 1116:5 1193:16 numeric 1010:20 1016:24 1047:4,5 1047:8,13,17,23 1048:14 numerical 1068:7 1068:8 | o'neil 1101:22 1102:21 1118:16 1121:3 o0o 995:3 1218:25 oakland 989:12 oath 998:14,19 1220:9 object 1002:24 1012:8 1013:14 1013:21 1015:15 1016:16 1017:19 1024:16 1027:13 1028:5,17 1029:12,20 1032:1 1035:22 1040:4 1041:3 1044:4 1052:23 1053:5 1054:5,19 1057:22 1058:14 1059:5,14 1060:12,23 1061:16 1062:1 1062:16 1063:18 1064:25 1065:8 1067:14,22 1069:11 1070:1 1070:10 1072:3 1072:12,23 1074:8,24,25 1075:20 1076:4 1076:16 1077:7 1078:1 1079:2 1081:17 1082:2 1082:18 1084:12 1086:10 1088:12 1088:21 1090:20 1092:4 1093:21 1095:1,4 1097:4 1097:21 1104:18 1104:21 1105:23 1106:12,18 | 1107:1 1115:8,8 1116:1 1117:14 1118:22 1119:23 1121:17 1122:23 1124:2 1126:9 1127:3,22 1128:4 1129:17 1130:18 1131:11 1132:14 1133:4,4,21 1135:12 1140:16 1141:8 1142:11 1143:5,19 1144:1 1144:8,18 1145:4 1145:12 1147:18 1150:1 1151:4,23 1152:18 1153:1,4 1154:19 1156:1 1157:25 1158:20 1167:21 1168:18 1169:14 1172:10 1173:1,19 1175:1 1175:21 1176:4 1177:13 1178:8 1178:17 1179:15 1179:24 1180:6 1182:1,8,17 1183:10 1185:9 1187:19 1189:2 1189:23 1195:22 1199:22 1200:4 1200:12 1201:9 1202:14,24 1203:9,22 1204:19 1205:2 1210:11,25 1211:20 1212:11 1215:4,18 objection 1060:11 1123:25 1156:19 1164:13 1186:16 1211:3 | objections 1140:24 1156:21 1158:9 1159:8 objectives 1183:23 observations 1215:23 obtained 1155:22 1158:6 obviously 1147:8 1217:2,9 1218:17 occasions 1058:16 1081:19 occur 1168:2 occurred 1133:13 1212:9 1213:14 occurs 1096:22 october 1001:4,8 1001:12 1002:10 1002:19,21 1003:1,11 1004:3 1006:6 offer 1002:14 1109:14 1165:18 offering 1006:2 1118:3 1203:13 office 1221:11 offline 1136:3,14 1137:6 1138:23 oh 1192:8 okay 995:5 997:16 1001:24 1004:16 1004:17 1008:1,3 1008:10,16 1009:25 1026:9 1029:8,15 1046:14 1056:5 1066:17,20 1074:21 1089:21 1089:25 1090:4 1090:12 1091:8 1092:16 1094:16 |
| o | | | |
| o 1038:15 1039:8 1039:11 1193:7 | | | |

HIGHLY CONFIDENTIAL

[okay - particular]

| | | | |
|--|--|--|---|
| 1095:11 1096:3 1101:12 1103:7,8 1103:17,25 1105:17 1106:6 1109:5 1110:8 1111:17 1112:4 1113:6 1116:6,10 1116:25 1129:25 1130:14 1134:9 1135:19 1136:17 1136:23 1138:4,5 1139:22 1140:5 1145:10 1147:14 1151:8 1158:25 1161:15 1166:25 1167:4,7,11 1171:1 1172:20 1182:5,13 1190:5 1190:19 1191:23 1192:21 1194:3 1194:15 1196:5 1201:4,15 1202:6 1206:4 1214:22 1218:21,22 oncall 1016:4,8,8 1016:10 1017:2,3 1017:4,6,6,11,11 1017:14,16 1089:4,8,14,15,18 oncalls 1016:19 once 1074:25 1091:14 1092:20 1092:25 ones 1085:8 1145:16 ongoing 999:7 1147:22 1193:22 1217:3 onwards 1205:7,9 operate 1202:18 | operated 1033:14 1040:9,13 1177:17 operates 1033:15 1164:21 operating 1051:1 1197:3 operational 996:10 operationalized 1066:16 opining 1166:10 1166:11 opinion 1148:21 1156:5 opposed 1196:2 order 1022:19,21 1022:23 1023:2 1052:2 1054:1 1056:10 1059:13 1059:20 1061:8 1061:25 1078:12 1081:4,7 1086:7,9 1086:18 1087:10 1087:12,16 1093:7 1119:6 1142:23 1143:15 1149:12 oregon 986:22 organization 1147:21 organizations 1182:18 original 1144:23 1220:14 1221:10 1221:21 originally 1147:3 ought 1161:10 outcome 1048:22 outside 1044:4 1060:23 1067:14 | 1077:7 1084:12 1088:21 1116:2 1121:17 1134:3 1140:16 1141:17 1142:11 1144:8 1148:14 1149:25 1150:10 1151:23 1155:25 1157:24 1158:19 1171:17 1177:13 1183:10 1184:2 1185:9 1197:17 1198:5 1198:20 1199:9 override 1003:25 1005:1 owned 1016:7 1040:9,13 owner 1018:19,24 1025:10,15 p p 1039:12 1041:9 p.m. 987:18 995:2 995:6 1005:15 1046:15,18 1101:13,16 1102:16 1138:6,9 1139:9,12 1146:20,23 1167:12,15 1206:5,8 1218:23 1218:24 page 991:16 993:3 993:12 994:2,11 1013:8,11,19 1062:25 1103:15 1103:16 1104:11 1105:6 1108:8 1117:1 1148:1,4 1173:4 1195:5,6,7 1221:15 1222:4 1223:4,7,10,13,16 | 1223:19 pages 986:25 1221:14,17,17 1222:3,6,6 paid 1182:15 1183:1 1215:16 1215:21 1216:16 pair 1005:14 1097:24 1099:25 1100:20 pairing 1006:19 pairs 1100:4,5 1185:20,23 palo 991:17 papamiltiadis 1102:23 1103:21 1104:16 1105:8 1105:20 1106:24 paragraph 1148:5 1148:24 1171:11 parallel 996:17 parens 1002:11 part 1023:4,11 1024:12 1048:12 1064:15 1072:15 1080:13 1083:2 1098:16 1103:9 1105:1 1113:22 1117:25 1118:3 1150:24 1184:15 1184:20 1210:2,7 1217:16 participate 1217:8 particular 1013:3 1018:10 1024:7 1070:16 1077:20 1096:5 1127:1 1161:16,24 1163:16 1169:16 1169:17,18 1201:11,12 |
|--|--|--|---|

HIGHLY CONFIDENTIAL

[particularly - perpetuity]

| | | | |
|---|---|---|---|
| particularly 1156:4 1192:1 | partnerships 1085:1,10 | pearly 996:21 997:7,21 | 1144:20,21 1155:3 1171:14 |
| parties 988:2 989:2 990:2 991:2 992:2 999:4,14 1110:22 1118:2 1143:2 1169:1,13 1183:7 1186:4,25 1197:8 1199:19 1200:9 1202:1 1207:5,9 | 1144:12,13 1145:17 1147:20 1167:23 1171:20 1173:13 1175:5 1177:16 1196:25 1203:24 1204:9 1212:16 | penalty 1219:2 1221:16 1222:5 | 1202:7 1204:15 1211:10 1212:14 1221:18 1222:7 |
| partner 1144:16 1150:9 1169:18 1193:13 1204:7 | party 1001:7,10 1001:14 1012:22 1013:13 1014:2 1029:7 1033:8,10 1033:20,22,25 1034:9 1037:24 1038:4,7,16,20,23 1039:12,15,17,21 1039:22,23 1040:3,8,12,16,18 1040:20 1041:2,6 1041:20,21,21 1042:1,3,8,10,12 1042:14,16 1057:11 1059:17 1059:19 1061:7 1061:20 1062:9 1081:2 1105:14 1152:20 1158:16 1176:23 1189:11 1190:3 1193:2 1194:10,13,25 1201:16 1220:19 | people 1017:9 1019:16 1023:4 1023:13,16,18 1024:2,4 1034:4 1036:10 1050:13 1050:16,17,19,24 1067:17 1077:10 1077:13 1079:13 1115:13 1117:21 1144:5 1147:20 1150:13 1170:2 1170:14 1171:19 1178:10 1180:8 1180:10,16,22,25 1181:7,16 1187:23 1188:1,2 1188:5,7 1190:1 1193:8 1197:4 1208:13,23,25 1209:5,11,12 1210:4,16 1211:7 1212:12,13,17 1214:14 1215:23 | perjury 1219:2 1221:17 1222:6 |
| partnered 1149:11 | | | permanently 1011:15 |
| partners 1140:15 1141:5,24 1143:18,22 1145:1 1147:16 1148:12,25 1149:4,10 1161:17,24 1163:17 1168:8 1168:17 1172:9 1172:24 1174:24 1175:19 1176:3 1181:5,24 1182:3 1182:6,14 1183:1 1184:1,4,8,11,12 1184:19,25 1185:4 1193:10 1204:10,11,14 1205:1,5 1208:7 1209:9 1210:6,7 1211:9,12,19 1214:2 1215:16 1215:21,21 1216:15,19 | | | permissible 1082:8,12,15,24 1083:2,4,8,13 1084:1,2,9,16 |
| | | | permission 1033:2 1111:11 1113:16 1114:1 1129:2,10 1130:1,3,5,15 1137:3 1192:2,9 |
| | | | permissions 1029:3,6,16 1112:8 1114:7,8 1114:24 1117:10 1118:10,20 1121:7 1126:8 1128:16,18,19,25 1129:5,21 1130:13,17,21,21 1145:6 1147:23 1153:19 1168:10 1172:25 1190:14 1190:17 1192:15 1192:18,19,22 |
| partnership 1173:12 | pass 1126:1 passed 1126:3,7 pay 1184:1,4 paying 1182:6 payments 1169:21 1170:6,9 1171:9 1171:21 pdf 1221:12 1222:1 | percent 1077:19 1105:25 perform 1017:12 1060:15 performed 1067:1 1067:3 performs 1060:7 period 1003:18,20 1003:23 1006:12 1052:25 1054:15 1057:24 1064:13 1092:11 1093:18 1095:13,18 1100:8 1127:8 | permitted 1001:19 1002:8 1061:25 1126:16 1127:1 1127:13 1131:22 permitting 1169:23 1170:10 perpetuity 1006:19 |

HIGHLY CONFIDENTIAL

[person - precursor]

| | | | |
|--|---|--|--|
| person 1010:11 1019:1,2,5,7,8,10 1019:11,13 1025:11,15,19 1026:3,6 1048:11 1078:20 1150:8 1150:15 1156:6 1156:11 1158:13 person's 1171:2 personal 1076:6 1100:6,18 1135:18 1157:18 1164:17 1165:3 1165:10,14 1208:17,18 personally 1014:9 1160:2 1166:19 pertain 1033:20 1034:9 pertaining 1044:2 1065:7 pertains 1012:17 1025:6 1220:13 pertinent 1190:23 phonetic 1044:11 photos 1191:11,17 phrase 1100:10 1115:13 1124:19 1148:17 1176:17 1176:18,20 phrased 1065:2 phrasing 1011:17 phuntso 991:14 995:24 pick 1196:7 picture 1129:14 1150:15 1207:2 place 1003:1,4,4 1086:12 1127:9 1127:10 1138:22 1142:21 1143:9 | 1191:21 1206:19 1220:6 placed 1075:1 places 1148:19 plainly 1057:2 plaintiff 1135:25 plaintiff's 999:19 plaintiffs 987:16 988:4 989:4 995:17,18,20 997:8,10 1014:23 1091:23 1138:12 platform 1027:5 1035:24 1036:2 1061:21 1062:10 1119:25 1120:15 1122:5,16 1144:11 1145:16 1145:17 1149:1,5 1149:6,23 1151:13 1152:14 1152:17,21 1153:3 1154:11 1154:16 1156:3 1157:6,7 1158:22 1159:12 1169:9 1170:22 1172:9 1172:24 1174:25 1175:20 1176:3 1181:25 1182:4,7 1182:16 1183:2 1184:21 1185:8 1185:17 1202:21 1210:7 1212:15 1212:16 platforms 992:17 995:23 plausible 1085:13 please 995:13 1032:23,23 1070:20 1092:18 | 1095:5 1113:20 1119:22 1136:3 1153:7 1161:20 1172:19 1194:6 1214:11 plural 1015:23 point 998:8 1001:4 1034:8 1052:15 1066:9 1085:8 1095:8 1098:8 1100:2 1118:8 1137:21 1165:17,24 1190:10 1191:14 policies 1134:6,25 1135:5 policy 1156:3 1157:6,7 1158:22 1159:4,12 politics 1093:15 1093:20 1094:20 1130:8 1131:3,6 poor 1011:17 poorly 1065:2 populated 1020:25 1021:4 port 1017:22 positions 1188:4,5 possesses 1204:18 possibility 1031:24,24 possible 1014:16 1019:6 1030:25 1031:7,18 1032:8 1038:25 1041:10 1041:13,14 1066:12,13 1073:3 1109:3 1144:5 1157:1 1195:7 | possibly 1050:20 1051:14 post 1151:2 posted 1009:24 1151:12 1192:3 1194:23 1195:7 posts 1191:11 potential 1068:11 1070:21 1173:13 1175:3,5,23 1176:6 1209:25 1213:1 potentially 1116:8 1119:12 poturnak 1102:22 power 1188:3 powerpoint 1172:1,7,22 1173:10,17,21 1174:7,10,12,14 1174:19,20 1177:4,6,10,10 1178:7,11,15,24 1179:3,6,11 practices 1140:15 1140:23 1184:17 precise 1037:18 1038:11 1039:24 1053:10 1055:3 1063:13 1069:5 1120:25 1123:16 1131:19 1193:24 1193:25 1201:1 precisely 1043:2 1047:5 1065:17 1098:4 1104:6 1106:22 1142:15 1149:19 precursor 996:22 996:23 |
|--|---|--|--|

HIGHLY CONFIDENTIAL

[predates - prolong]

| | | | |
|---------------------------|--------------------------|-------------------------|--------------------------|
| predates 1064:24 | 1083:11 | 1124:9,19,23 | 1147:22 1148:8 |
| preexisted 1080:9 | previously 994:10 | 1163:1 1167:24 | 1150:16,23 |
| preexisting 1081:6 | 995:12 997:8,10 | 1168:8,16 | 1168:3 1186:24 |
| preface 1078:19 | 997:11,20 998:14 | 1192:11,19,22 | 1187:2,5,11,11,14 |
| 1078:22 | 1073:18 1081:18 | 1202:2 1203:7 | 1193:13 |
| preferences | 1083:17 1095:20 | probably 1016:18 | processed 1050:22 |
| 1125:17 | 1146:9 1147:1 | 1031:9 1109:14 | processes 1003:3 |
| prep 1106:1 | 1171:25 1188:23 | 1140:8 1193:19 | 1025:3 1044:18 |
| preparation | 1190:7,24 | problem 1103:8 | 1044:21 1150:19 |
| 1031:13 1032:3 | 1191:13 1192:25 | 1196:5 | 1189:8 |
| 1071:1 1078:16 | 1195:15 | problematic | produce 1067:19 |
| 1103:4 1111:18 | primarily 1151:11 | 1162:13 | 1108:25 1110:14 |
| 1116:21,23 | primary 1011:5 | problems 1162:16 | produced 1007:2 |
| 1170:15 1208:23 | prior 1002:20,21 | procedure | 1015:1,6 1072:16 |
| 1209:5,11 | 1046:1,4 1047:11 | 1221:19,20 | 1073:1,3,22,25 |
| 1212:13 1215:19 | 1048:13,22 | proceed 1090:3 | 1092:1 1109:2,15 |
| preparations | 1049:22 1050:15 | proceedings | 1109:20 1130:25 |
| 1150:25 1169:24 | 1050:23 1054:13 | 1220:5,8,9,15 | 1134:13 |
| prepare 1150:20 | 1059:3 1062:14 | process 999:14 | producing |
| 1173:17 1177:8 | 1064:17 1067:2 | 1002:18 1003:1,5 | 1083:19 |
| 1178:16 1205:14 | 1083:1 1084:24 | 1003:10 1006:4 | product 1085:1,10 |
| prepared 1156:25 | 1094:6,11 | 1023:4,5,7,12,14 | 1136:1 1145:17 |
| 1157:1,2,4,8,14 | 1186:12,18 | 1023:16,19,24,25 | production 996:7 |
| 1158:23 1172:1 | 1201:19,20 | 1024:3,8,12,15,18 | 1035:6 1065:22 |
| 1188:24 1195:18 | 1220:8 | 1024:24 1025:6 | professional |
| 1212:25 | privacy 995:8 | 1033:7,9,16 | 987:21 1165:21 |
| preparing 1106:2 | 996:25 997:1 | 1034:3 1036:11 | 1220:2 |
| present 992:15 | 1044:18 1045:8 | 1037:1 1044:7 | profile 986:4 |
| 1053:2 1126:18 | 1045:10,15,21 | 1045:10,13 | 987:4 995:9 |
| 1159:16 1205:1 | 1046:1,21 | 1046:1,4 1047:10 | 1192:3 1221:4 |
| presented 1148:22 | 1047:10,18 | 1048:23 1050:4 | 1223:1 |
| presently 995:17 | 1048:8,12,16,19 | 1051:1 1054:9 | profits 1171:12 |
| 1034:15 1036:1 | 1048:23 1049:11 | 1061:10,13 | program 1048:12 |
| 1094:13 1123:21 | 1049:17,21,25 | 1064:10,12,16,23 | 1049:22 1050:14 |
| 1133:20 1135:10 | 1050:5,9,14,22 | 1065:5,18 1066:6 | 1193:18,18 |
| press 1140:14,22 | 1051:3,14 1085:2 | 1066:15 1068:19 | progressing |
| pretty 1163:8 | 1085:11 1088:8 | 1082:22,23 | 1071:24 |
| prevent 1204:5 | 1221:4 1223:1 | 1083:22,25 | project 1136:1 |
| prevented 1132:9 | private 1122:7,10 | 1084:11,25 | 1177:12,24 |
| previous 997:21 | 1122:18,22 | 1091:16,21 | prolong 1167:4 |
| 1041:14 1063:25 | 1123:5,8,12,19,21 | 1093:10 1094:5 | |

HIGHLY CONFIDENTIAL

[promised - ready]

| | | | |
|---|---|--|---|
| promised 1169:22 1170:7,10 | 1103:24 1104:1 1104:17 1118:18 | 1164:2,7 1165:6,8 1165:12,13,17,19 | quickly 1004:22 1110:12 1146:18 |
| prompted 1208:1 | 1119:6 1137:1 | 1166:18,20,21,22 | quip 1105:9,12,18 |
| pronounce 1118:12 | 1142:22 1143:15 1147:2 1150:5 | 1168:13 1170:1 1173:6 1175:9 | 1106:3 1107:7,10 1108:7,14,16,25 1109:25 1177:12 1178:2,3 |
| proposed 1175:25 | pulled 1052:15 | 1176:11,13,14 | quips 1109:16 |
| protocol 1218:2,3 | 1057:15 1107:6 1118:17 | 1180:14 1182:21 1182:24 1189:12 | quite 1123:17,17 1123:18 1126:5 1164:22 1175:7 1203:10 |
| prove 1162:12 1164:11 | pulling 1117:21 1142:4 | 1189:16 1193:23 1194:2,5 1195:21 1195:23 1196:1 1197:22,23,24 1199:16 1200:14 1200:15 1208:6 1211:25,25 1213:7,16,20 1214:8,10,21 1216:10 | r |
| provide 1000:1 1006:17 1009:21 1033:1 1086:20 1136:6 1138:14 1156:5 1158:11 1164:16 1217:18 | purpose 1013:18 1017:21 1137:4 | questioning 998:7 1074:25 1138:19 | r 1044:22 1223:3 1223:3 |
| provided 1019:11 1019:14 1072:15 1073:24 1074:3 1079:17,19 1118:1 1131:24 1131:24 1132:9 1137:11 1142:10 1143:12 1165:23 1170:10 1214:12 1214:18,24 1215:5 1221:19 1222:8 | purposes 1014:4 put 997:14 1073:20 1077:1,2 1091:10 1163:25 1171:22 1208:19 | questions 1000:22 1015:5 1026:17 1074:1 1089:23 1090:1 1096:24 1110:16 1113:7 1118:7 1138:14 1139:17 1146:6 1147:6,7 1148:6 1150:22 1155:14 1159:14,21,25 1160:10,16,16,18 1160:25 1161:1 1162:10,14,19 1163:24 1165:16 1166:1,2 1172:15 1196:11,14 1206:12 1216:22 1217:4 | r&s 1222:1,9 rabbit 1137:14 raised 999:11 1109:7 1141:1 1197:5 1217:11 raising 997:17 range 1127:5 ranging 1123:17 1123:18 reach 1150:21 1174:5 read 1112:16 1113:19 1128:16 1129:6,7,8 1130:1 1130:2,5 1148:5 1149:2 1175:10 1175:16 1176:14 1191:16 1193:1 1213:8 1219:2 reading 1081:9 1103:11 1104:2,3 1114:5 1156:13 1221:23 1222:9 ready 1101:24 1162:9 |
| providers 1061:4 | putting 1132:7 | quick 1046:12 1172:20,20 | |
| provides 1006:15 | pwangdra 991:19 | | |
| providing 1143:24 1160:1 1162:24 1162:25 1203:7 1203:21 | q | | |
| public 1169:4 1192:19 1195:8 | qualified 1156:5 1158:13 | | |
| publicly 1115:21 1195:7 1197:12 1197:25 1198:15 | queries 1002:9 query 1002:5 question 1021:24 1023:21 1027:19 1030:5 1056:24 1065:2 1067:24 1088:14 1093:23 1104:4,8 1109:23 1110:7 1115:9 1123:2 1125:16 1132:5 1134:8 1144:23 1153:6 1153:15 1155:7 1155:14 1156:3,6 1156:12,16 1157:2,2,3,5,5,16 1157:17,19,21,23 1158:2,12,22 1159:1,3,7,11 | | |
| pull 1004:14 1008:13 1014:13 1094:24 1103:21 | | | |

HIGHLY CONFIDENTIAL

[real - refers]

| | | | |
|------------------------|-------------------------|--------------------------|--------------------------|
| real 1146:18 | 1176:19,21 | 1113:8 1116:24 | 1221:6 |
| realize 1146:25 | 1178:20 1180:17 | 1136:24 1137:24 | references 1009:3 |
| 1217:24 | 1181:2 1189:3 | 1138:6,9,15,16 | 1009:4 1013:3 |
| really 1124:6 | 1199:23 1206:17 | 1139:6,7,8,12 | 1019:5 |
| 1195:13 1199:14 | 1209:10 1211:5 | 1140:8 1146:9,18 | referencing |
| 1199:15 1214:20 | recalled 1173:9 | 1146:19,23,24 | 1011:25 1022:22 |
| 1214:20 | receive 1186:25 | 1153:10 1155:11 | 1094:11 1105:18 |
| reask 1147:8 | 1202:12 | 1156:21 1157:11 | 1120:23 1169:18 |
| reason 1011:1 | received 1074:22 | 1167:8,9,12,15 | referred 1010:4 |
| 1031:21 1050:5,8 | 1140:14 1158:15 | 1177:2 1188:12 | 1015:22 1044:10 |
| 1051:3,14 1074:5 | 1169:12,22 | 1206:3,5,8 | 1044:14 1070:3 |
| 1074:10 1075:25 | 1171:9,16,21 | 1214:13,24 | 1072:2,7 1085:7,9 |
| 1115:25 1116:3 | 1174:7,10,12 | 1216:23 1217:1 | 1108:6,13 |
| 1132:8 1188:12 | 1184:11 1200:10 | 1217:12 1218:8 | 1150:16 1207:17 |
| 1199:19 1204:24 | 1202:2,6 1214:3 | 1218:11,12,14,21 | referring 1032:6 |
| 1205:19 1213:18 | recess 1046:16 | 1218:23 1220:9 | 1046:8 1052:25 |
| 1213:21 1223:6,9 | 1101:14 1102:14 | 1220:12 | 1058:23 1076:17 |
| 1223:12,15,18,21 | 1138:7 1139:10 | recorded 1026:2 | 1099:9 1105:21 |
| reasonable | 1146:21 1167:13 | records 1143:3 | 1105:25 1129:8 |
| 1123:19 1136:4 | 1206:6 | rectify 1110:13 | 1155:4 1194:22 |
| reasons 1014:17 | recognized | redirect 1140:7 | 1212:23 |
| 1014:17 1022:13 | 1090:12 1171:13 | reevaluated | refers 1010:23 |
| 1196:24 1199:24 | recollection | 1196:22 | 1021:10 1022:16 |
| 1200:6 | 1055:24 1058:15 | reevaluation | 1022:23 1026:13 |
| rebecca 986:21 | 1063:24 1064:8 | 1197:9 | 1027:14 1028:7 |
| 987:20 1220:1,24 | 1070:4,25 | refamiliarize | 1032:17 1033:5 |
| recall 1004:13 | 1073:14 1074:6 | 1103:6 1172:12 | 1037:23 1038:3 |
| 1059:21 1069:5 | 1081:19 1090:9 | refer 1000:8 | 1038:18 1039:14 |
| 1071:12,13,15 | 1100:11,22 | 1033:13 1045:12 | 1040:8 1045:10 |
| 1072:5 1073:19 | 1106:13 1108:15 | 1047:9,16 | 1048:10,21 |
| 1074:14 1075:21 | 1108:22 1178:19 | 1068:23 1069:13 | 1049:20 1050:8 |
| 1098:2,7,17 | 1179:8 | 1071:23 1074:18 | 1050:22 1051:23 |
| 1099:24 1100:2 | recommendation | 1074:19 1075:8 | 1066:4,25 1067:6 |
| 1106:19,21 | 1145:9,19 | 1089:8,15,18 | 1076:20 1086:6 |
| 1107:2 1116:5 | record 995:6,14 | 1112:2 1122:19 | 1087:14 1089:6 |
| 1124:21 1129:24 | 997:5,15 998:4,23 | 1147:3 1149:7 | 1089:13,17 |
| 1130:2,9,19 | 999:6 1046:13,15 | reference 1000:14 | 1122:12,15 |
| 1140:18,25 | 1046:18 1065:20 | 1020:1 1087:10 | 1128:24 1129:9 |
| 1147:10 1172:4,5 | 1094:4 1101:11 | 1092:14 | 1149:10 1151:11 |
| 1172:7,22 | 1101:13,16 | referenced | 1160:14 |
| 1174:20 1176:18 | 1102:10,12,13,16 | 1000:18 1013:1 | |

HIGHLY CONFIDENTIAL

[refied - represents]

| | | | |
|---------------------------|--------------------------|--------------------------|--------------------------|
| refied 1206:22 | regan 991:6 | relative 1070:8 | removed 1001:7 |
| reflect 1007:3 | 995:24 | 1220:18 | 1001:10,14 |
| 1069:1 1084:10 | regard 1074:13 | relatively 1011:6 | 1005:10,19 |
| 1095:17 1096:11 | 1160:14 1168:13 | 1183:22 | 1006:10 1167:24 |
| 1106:24 1113:23 | 1170:6 1192:17 | relay 1038:12 | 1190:4,14 1193:2 |
| 1126:25 1131:8 | regarding 996:7 | released 1221:21 | 1193:3,7 1194:12 |
| reflected 1008:24 | 999:24 1000:5 | relevant 1000:16 | removing 1002:16 |
| 1009:15 1010:22 | 1002:14 1003:11 | 1033:10 1065:23 | 1002:22 1003:1 |
| 1011:2,3,14 | 1058:8,11 1065:6 | 1206:24 | repeat 1075:4 |
| 1012:7,18 | 1065:22 1078:24 | reliable 1097:11 | repeated 1163:24 |
| 1013:10 1014:12 | 1080:8 1081:14 | relied 1201:17 | rephrase 1005:2 |
| 1014:25 1015:12 | 1084:11 1100:4 | 1202:10 | 1011:17 1098:11 |
| 1018:17 1020:11 | 1100:19 1116:8 | relief 1160:5 | report 1188:11 |
| 1022:3 1036:15 | 1120:13 1138:19 | religion 1093:15 | reported 986:14 |
| 1045:19 1049:25 | 1141:1,1 1150:8 | 1093:20 1094:20 | 986:20 987:19 |
| 1050:1 1054:3 | 1160:25 1205:15 | 1130:8 1131:3,6 | 1115:21 |
| 1057:4,6 1067:5 | 1206:13 | rely 1203:3 | reporter 987:20 |
| 1069:20 1070:22 | regardless | relying 1015:4 | 987:21,22 1007:6 |
| 1070:22 1072:20 | 1157:13 1190:15 | 1100:9 | 1101:18 1102:9 |
| 1079:1 1082:17 | 1191:1 1192:16 | remain 1037:12 | 1107:12 1111:3 |
| 1084:5,8 1085:7 | regards 1208:22 | remained 1001:2 | 1116:12 1175:12 |
| 1089:10 1093:2 | 1209:15 | remaining | 1220:2,3,3 |
| 1099:22 1100:3 | registered 987:21 | 1071:15 | represent 1011:22 |
| 1100:21,23 | 1220:1 | remember 1004:6 | 1012:10 1069:25 |
| 1106:17 1111:22 | relate 1160:20 | 1069:3,4 1072:5 | 1084:16 1115:20 |
| 1114:3 1125:21 | 1162:19 | 1118:4 1129:24 | representation |
| 1125:22 1148:20 | related 998:6 | 1131:4,23 1189:1 | 1057:18 |
| reflecting 1057:14 | 1152:13 1161:7 | 1190:21 1193:15 | representations |
| 1099:24 1127:13 | 1171:13,16 | 1206:16 1218:3 | 1196:4 |
| 1130:25 | 1179:20 | remembering | representative |
| reflection 1071:3 | relates 986:6 | 1071:2 | 986:13 1165:5 |
| 1073:11 1099:25 | 987:6 1068:18 | reminder 1173:2 | represented |
| reflective 1126:23 | relating 1058:4 | remotely 986:14 | 1016:20 1030:19 |
| 1127:16 1128:2 | 1062:9 1161:2 | 987:18 1220:6 | 1034:4 1056:9 |
| reflects 1049:5 | 1178:3 1190:4 | removal 1003:11 | 1067:10 1069:4 |
| 1057:9 1068:8 | relation 1131:6 | 1003:21 1004:1 | 1070:12 1071:4 |
| 1072:9 1073:16 | 1181:1 1216:7 | 1005:1,3,17 | 1073:14 1100:16 |
| 1087:3 1094:19 | relationship | 1006:4 | representing |
| 1096:4 1114:21 | 1006:3 1124:8,16 | remove 1003:19 | 1016:10 |
| refresh 1004:11 | 1178:1 | 1065:15 | represents |
| | | | 1010:24 1012:3 |

HIGHLY CONFIDENTIAL

[represents - right]

| | | | |
|---|---|--|--|
| 1012:10 1016:8 1017:4,8 1018:5 1018:20 1025:15 1026:6 1044:19 1052:14 1054:7 1063:1,6 1069:23 1088:25 1091:5 1112:14 1204:8 request 997:12 1000:7,7 1097:15 1111:11 1113:16 1114:1 1136:19 1160:5 1187:6,9 1187:16,17,21,24 1188:1 1218:2,6 requested 997:11 1036:17 1097:17 1217:20 1220:16 1222:1,9,10 require 1036:25 1037:24 1051:21 1052:4,12 1054:11 1063:3 1063:10 1080:24 1159:3 required 999:17 1036:7,12 1037:21 1052:16 1053:10,25 1054:3,17 1057:5 1057:21 1058:5 1058:11 1059:3,7 1062:24 1063:17 1063:23 1065:13 1078:6,11,25 1079:6,10,14,21 1080:9 1081:1,7 1081:11,15 1192:2 1199:16 requirements 1186:24 | requires 1052:8 1053:7,14,19 1054:9 1057:10 reserve 1217:2,10 resize 1004:21,25 resolve 1017:24 resolved 999:13 respect 1086:18 1086:20 1113:2 1131:2 1152:2 1181:11 1183:6 1217:10 respectfully 1197:21 responds 1117:7 response 1024:18 1097:9 1158:12 1165:11 1208:5 responsible 1016:11,14 1017:5 1018:9,13 1021:17,19 1024:8 1034:4 1039:20 1050:10 1078:23 1079:13 1082:16,21,24 1083:22,25 1084:22 1085:17 1089:9,12,19 responsive 1136:4 rest 1000:23 1001:7,15,19 restate 1005:23 1013:7 1023:10 1027:18 1040:25 1041:4 1055:13 1058:20 1060:20 1065:1 1067:23 1072:24 1092:17 1115:5 1126:4 | result 1024:19 1096:8 1143:2 1203:7 1213:2 resulted 1165:15 results 1150:23 resumed 998:16 retention 1134:6 1134:24 1135:5 return 996:15 1030:14 1128:22 1138:18 1191:3 1221:17 1222:6 returned 996:16 1095:23 1129:4 returns 1205:23 1205:25 reveal 1086:17 revenue 1180:17 1184:14 1185:7 1207:6 1208:6,8 1208:13,21 1209:7,14 1210:2 1210:5,19 1211:11,17,18 1212:7,21 1213:3 1213:11 1214:3 1214:15 1215:1,2 1215:7,20 1216:6 1216:20 revenues 1169:21 1170:7,9 1171:12 review 1004:5 1015:11 1031:14 1045:8,10,15,22 1045:24 1046:1 1047:10,18 1048:12,16,23 1049:11,17,22,25 1050:1,5,9,14,22 1051:3,14 1064:16,17 | 1077:2 1089:25 1106:2 1111:17 1116:20 1147:10 1147:12 1217:14 1220:15 1221:8 1221:10,13 1222:2 reviewed 1007:18 1032:2,7 1042:21 1042:23 1043:18 1043:20 1048:8 1048:11,19 1070:25 1078:15 1089:7 1090:10 1094:6 1108:6,20 1112:12 1167:23 1173:10 1201:20 1209:13 1211:4 1215:9 1216:5 reviewing 1015:13 1111:12 1172:5 1208:12 1218:18 reviews 1046:21 rid 1197:12 1198:1,15 1199:5 right 998:1 1010:2 1013:20 1018:22 1019:3 1020:4 1022:4 1031:12 1037:3 1045:4 1046:19 1049:7 1049:12 1063:11 1064:20 1065:3 1068:24 1071:6 1073:17 1079:8 1085:20 1090:14 1091:4 1093:8 1094:14 1095:14 1099:23 1105:4 1107:8 1108:14 1108:18 1109:13 |
|---|---|--|--|

HIGHLY CONFIDENTIAL

[right - schwing]

| | | | |
|---|--|---|--|
| 1109:17 1112:5,6 1117:24 1118:2 1121:14 1122:25 1124:21 1128:8 1128:11,15 1129:13 1130:17 1141:16 1152:10 1153:25 1154:3,7 1154:18 1155:1 1156:17 1159:13 1167:6 1171:22 1178:16,25 1179:6 1180:5 1181:2 1184:12 1185:1 1186:13 1199:21 1200:11 1200:17,24 1201:8,18,23 1202:3,7,13,23 1204:18 1209:2 1217:1,3 1218:12 rights 1217:10 risk 1066:22,23,24 1067:4,6,6,9,12 1067:19 1068:1,6 1068:8,11,15,18 1068:23 1069:1,6 1069:10,21,21,25 1070:8,22 1071:18,21,22,24 1072:1,1,6,10,20 1073:5,9,19 1074:15 1076:15 1076:18,20,21,23 1080:10 risks 1071:23 road 991:16 1166:4,4 rohrback 988:5 995:18 | role 1130:14 roll 1101:25 rolled 1192:4 romano 986:21 987:20 1220:1,24 room 1159:18 rose 1116:17 1117:2 1145:24 1148:3 ross 990:16 rotation 1017:2,3 1017:4 rotations 1017:11 rough 1134:22 row 1005:13 1008:22 1009:1 1009:11 1010:20 1011:18 1012:18 1016:23 1018:1 1019:2 1020:20 1020:23 1026:18 1030:6 1031:14 1032:7 1033:3 1034:22 1036:15 1038:21,22 1045:2,15 1047:23 1049:5,8 1051:3 1052:4 1055:15,16,20 1056:11,14,15 1067:25 1087:17 1089:10 rows 1032:5 1051:12 rpr 986:21 1220:24 rule 1159:16 1162:9 1164:9 rules 1222:8 run 1003:14 1185:15 | running 1184:17 1215:25 runs 1098:17 1102:23 1103:1 s s 993:11 994:1 1045:7,19,24 1046:21 1047:2 1047:14,24 1048:1 1171:5 1223:3 sajjadi 1046:7,8 sale 1155:21 1158:6 san 990:10 saw 1055:15 1103:4 saying 1027:25 1078:19 1094:13 1116:4 1117:3,4 1156:10 1165:2 1186:11 1189:4 1210:9 says 1007:25 1010:19 1030:6 1042:17 1051:21 1105:12 1161:13 1164:3,4 1171:12 1173:4 1211:6,17 1212:3 scandal 1140:13 1141:4 1160:20 1195:18 1196:20 scenario 1031:19 scenarios 1082:8 1082:12,15,16,25 1083:2,5,8,13 1084:3,9,10,17,20 1084:23 1085:4,6 1085:9,21 | schedule 1221:10 schwing 990:6 993:7 995:21,22 997:16 999:22 1002:24 1007:19 1008:1,4,12,14 1012:8 1013:14 1013:21 1015:15 1016:16 1017:19 1024:16 1027:13 1028:5,17 1029:12,20 1032:1 1035:22 1040:4 1041:3 1044:4 1052:23 1053:5 1054:5,19 1056:21 1057:22 1058:14 1059:5 1059:14 1060:8 1060:10,23 1061:16 1062:1 1062:16 1063:18 1064:25 1065:8 1067:14,22 1069:11 1070:1 1070:10 1072:3 1072:12,23 1074:8,24 1075:20 1076:4 1076:16 1077:7 1078:1 1079:2 1081:17 1082:2 1082:18 1084:12 1086:10,16 1088:12,21 1090:20 1092:4 1093:21 1095:1,4 1097:4,21 1102:1 1103:10 1104:18 1104:21 1105:23 1106:12,18 |
|---|--|---|--|

HIGHLY CONFIDENTIAL

[schwing - serves]

| | | | |
|-------------------|--------------------------|--------------------------|--------------------------|
| 1107:1 1109:5 | 1176:4 1177:13 | 1151:24 1155:25 | see 1004:17,23,24 |
| 1110:2,12 | 1178:8,17 1179:1 | 1156:19,21 | 1004:25 1008:6,6 |
| 1112:24 1113:6 | 1179:15,24 | 1157:24 1158:19 | 1008:8 1009:12 |
| 1115:8 1116:1 | 1180:6 1182:1,8 | 1163:11 1164:13 | 1009:14,17 |
| 1117:14 1118:22 | 1182:17 1183:4 | 1164:15,16,25 | 1032:14 1051:2,4 |
| 1119:23 1121:17 | 1183:10 1184:2 | 1177:14 1183:11 | 1056:13,15 |
| 1122:23 1123:25 | 1185:9 1186:6,14 | 1184:2 1185:9 | 1062:20 1068:2,3 |
| 1124:2 1126:9 | 1186:16 1187:19 | 1197:17 1198:20 | 1073:11 1104:11 |
| 1127:3,22 1128:4 | 1189:2,23 1191:4 | 1199:9 | 1105:8,10,16 |
| 1129:17 1130:18 | 1195:22 1196:4,9 | scott 1101:22 | 1107:18 1110:12 |
| 1131:11 1132:14 | 1196:13 1197:16 | 1102:20 | 1111:15,16,21 |
| 1133:4,21 1134:3 | 1198:5,19 1199:9 | screen 1004:17 | 1112:24 1113:9 |
| 1135:12,22,24 | 1199:22 1200:4 | 1007:13 1008:6 | 1114:7,20,22,23 |
| 1136:9,21 | 1200:12 1201:9 | 1051:4 1066:20 | 1115:1 1118:21 |
| 1137:14,23 | 1202:14,24 | 1073:21 1091:10 | 1118:23 1145:21 |
| 1138:1,4,21 | 1203:9,22 | 1094:14 1111:13 | 1146:2,3 1148:17 |
| 1139:23 1140:10 | 1204:19 1205:2 | 1111:15,16 | 1150:2,12,16 |
| 1140:16,24 | 1206:10 1207:12 | 1114:22 1117:1 | 1161:11 |
| 1141:8,17 1142:1 | 1209:3,20 | script 1003:14 | seeing 1107:3 |
| 1142:11 1143:5 | 1210:11,14,25 | scroll 1032:13 | seek 1174:6 |
| 1143:19 1144:1,8 | 1211:3,20 | 1066:17 | seen 1111:19 |
| 1144:18 1145:4 | 1212:11 1213:16 | search 1015:18 | 1112:19 1178:24 |
| 1145:12 1146:8 | 1215:4,18 | 1090:23 1094:19 | send 1096:16 |
| 1146:13 1147:18 | 1216:17,23 | 1109:4 1173:16 | sending 1096:12 |
| 1148:14 1149:25 | 1217:9,18,21 | 1173:20 1177:22 | sense 1076:7 |
| 1150:10 1151:4 | 1218:4,10,15 | 1177:25 1178:3 | 1125:2 1153:14 |
| 1151:23 1152:18 | schwing's 1208:6 | searched 1137:12 | 1163:6 |
| 1153:1,4,16 | science 1117:8 | seattle 988:13 | sent 1049:17,25 |
| 1154:13,19 | scientists 1015:8 | second 1039:15,18 | 1050:9 1214:1 |
| 1155:2,25 | scope 1044:5 | 1039:20,22,23 | separate 1011:2 |
| 1156:18 1157:24 | 1060:23 1067:15 | 1040:3,16,16,18 | 1053:25 1054:1 |
| 1158:9,19 1159:8 | 1077:8 1084:13 | 1040:20 1041:2,6 | 1088:10,18 |
| 1159:15,20 | 1086:4 1087:1,4 | 1041:16,18,21 | 1163:20 |
| 1161:6,7,15,20,23 | 1087:18,21,23 | 1042:1,8,10,12 | sequential |
| 1163:7,13,14,22 | 1088:2,5,11,19,22 | 1103:16 1147:2 | 1068:13 |
| 1164:1,20 1166:8 | 1089:2 1115:8 | 1148:1 1156:14 | series 1080:15 |
| 1167:1,21 | 1116:2 1121:18 | seconds 1045:4 | 1128:10 1129:12 |
| 1168:18 1169:14 | 1134:3 1140:16 | 1049:2,6,9 | 1213:25 |
| 1171:17 1172:10 | 1141:17 1142:12 | section 1087:15 | servers 1035:7 |
| 1173:1,19 1175:1 | 1144:9 1148:14 | sections 1087:15 | serves 1070:4 |
| 1175:12,15,21 | 1149:25 1150:10 | | |

HIGHLY CONFIDENTIAL

[services - source]

| | | | |
|-------------------------|---------------------------|--------------------------|-----------------------|
| services 1119:16 | sic 1144:22 1157:2 | 1212:2 | 1060:9,10 |
| session 997:22 | 1171:6 | site 1069:8,13,13 | 1064:21 1066:18 |
| set 1027:11 | side 999:19 | 1069:14,17,19,20 | 1068:14 1080:12 |
| 1050:19 1062:20 | 1170:24 | 1119:12 1121:5 | 1084:1 1086:2,11 |
| 1089:19 1092:2 | sign 1052:1,18 | 1136:19,24 | 1086:16 1088:13 |
| 1128:25 1137:9,9 | 1053:19 1081:3 | 1206:13,22 | 1090:6 1091:19 |
| 1162:14 1165:15 | 1221:16 1222:5 | 1207:18 | 1095:3,25 1096:9 |
| 1206:23 1220:6 | signature 1220:24 | situation 1141:2 | 1097:18 1099:13 |
| sets 1090:10 | 1221:21,23,23 | 1152:23 1196:21 | 1099:16 1100:4 |
| 1164:22 | 1222:9 | 1197:6 | 1102:21 1104:19 |
| setting 1011:5 | signed 1053:8 | six 1068:11 | 1105:6,19 |
| sev 1069:4,7,8 | 1059:16 1061:19 | 1107:25 | 1106:21 1107:5 |
| 1070:3,22 | 1078:11 1079:6 | skip 1009:12 | 1107:15 1108:13 |
| 1071:14 1072:5 | 1115:7 | skipping 1018:23 | 1115:14 1117:15 |
| 1073:13,15 | significant | slice 1172:20 | 1120:2 1121:21 |
| share 998:10 | 1181:24 1182:3 | slightly 1023:22 | 1122:14,24 |
| 1007:13,20,22,24 | significantly | 1023:22 1037:7 | 1123:17 1124:1 |
| 1008:9 1111:13 | 1062:4 | 1164:20 | 1125:15 1129:22 |
| 1162:5 | similar 1017:16 | slowly 1113:19 | 1133:3 1135:2,4 |
| shared 1169:12 | 1083:11 1089:7 | 1114:5 | 1135:23 1136:12 |
| 1197:7 | 1125:2 | small 1051:12 | 1139:23 1142:14 |
| sharing 1117:1 | simon 986:13 | smith 991:6,12 | 1144:23 1152:2 |
| 1140:14,23 | 987:15 993:3 | 995:24 | 1153:5 1161:20 |
| 1158:14 1160:11 | 995:7 998:13 | snapshot 1057:13 | 1161:22 1168:11 |
| 1160:12,19,20,21 | 1060:8 1107:22 | social 1149:8 | 1169:3 1171:2 |
| 1161:1,8,9 | 1219:1,12 1221:1 | solely 1038:1 | 1173:2 1175:14 |
| 1162:19 1203:21 | 1221:5 1223:2 | solid 1197:9 | 1179:25 1181:15 |
| 1205:15 | simple 1152:11 | solutions 1221:7 | 1186:15 1191:4,6 |
| shirine 1046:6,8 | 1182:24 1211:25 | somebody | 1192:8 1200:6 |
| shirine's 1046:7 | 1213:7 | 1017:17 1036:10 | 1205:8 1207:22 |
| short 1089:4 | simply 1160:18 | 1036:17 1079:17 | 1208:19 1214:7 |
| 1105:15 1138:20 | single 1009:7 | 1079:19 1135:25 | 1214:19 |
| shorthand 987:20 | 1011:15 1032:7 | 1177:18 1192:3 | sort 1110:22 |
| 1220:2,10 | 1145:14 1208:2 | 1194:8 | 1141:5 1162:1 |
| show 1166:4 | 1211:2 | soon 1192:4 | 1184:8 |
| 1179:2,11 | singular 1015:23 | sorry 995:19 | sought 1141:4 |
| showing 1007:20 | sir 1141:13 | 998:25 999:1 | sound 1055:18 |
| 1171:24 1174:20 | sit 1023:17 1024:1 | 1001:12 1013:4 | 1075:19 1115:24 |
| shown 1063:7 | 1031:10 1074:9 | 1020:23 1021:24 | sounds 1162:4 |
| si 1221:2 | 1077:15 1134:21 | 1032:22 1055:4 | source 1096:25 |
| | 1156:12 1211:22 | 1055:19 1056:23 | 1117:8,12,16 |

HIGHLY CONFIDENTIAL

[source - stays]

| | | | |
|--|--|---|--|
| 1118:18 1119:8 1122:7 1136:25 1137:10 1143:10 sources 996:5 1119:6 1137:12 1143:14 space 1010:10 1212:18 spaces 1010:9 speak 1015:7 1021:5 1035:23 1041:7 1070:13 1075:16 1078:2 1135:13 1150:24 1170:16,18 1205:16,17,20 speaking 1164:8 1189:25 1208:13 1210:4,16 1211:7 1215:23 speaks 1056:21 special 992:6 996:1,2 998:22,25 999:1 1101:24 1102:2,4,7 1107:17,23 1109:17,21 1110:4,8,18 1117:10 1118:10 1118:19 1121:7 1135:15,22,24 1136:17 1137:3,7 1139:3 1156:8,20 1156:24 1157:9 1159:15,17,20 1160:8,9 1161:4 1162:8 1163:4,21 1163:25 1164:24 1166:3,9,16,25 1167:7,9 1211:24 1213:19 1217:17 | 1217:19,21 1218:1,5,13 specialy 1179:13 1180:3 specific 1006:16 1006:18 1008:21 1008:22 1009:20 1012:1 1020:7 1024:2 1028:12 1028:21 1030:2 1037:4 1043:25 1044:20 1045:21 1058:5 1059:21 1063:21 1066:6 1069:13 1077:10 1078:20,21,21 1079:5,5 1083:18 1087:13 1089:15 1089:24 1093:14 1097:6 1099:14 1103:9 1119:25 1122:12,15,17 1123:8,15 1124:17 1125:10 1125:18,24,24 1135:9 1144:19 1162:3 1163:11 1168:17 1176:18 1176:19 1178:1,4 1183:6 1186:19 1188:7 1218:6 specifically 1027:15 1059:22 1075:23 1106:20 1129:9 1141:14 1142:9 1160:11 1161:3 1170:6 1174:18 1177:3,6 1178:15 1179:11 1181:12 1189:4 1192:17 1212:4 | specifics 1025:4 1074:14 spectrum 1068:9 speculate 1040:1 1040:22 1077:13 speculating 1014:7 speculation 1037:17 speed 1160:5 spell 1171:4 spend 1179:14,21 1180:4,11 1181:3 1181:7,12,14,24 1182:3,19,19 1183:7 1207:10 1208:13 1209:7 1211:17 1212:7 1213:11 1214:16 1215:1 spent 1092:15 1184:14 1185:8 1216:20 split 1096:23 spoke 1170:2,12 1170:12,14,23 1171:18 1178:18 1180:20,22,24,24 1181:7 1208:23 1208:25 1209:5 1209:11,12 1212:13 1213:24 1214:14 spoken 1174:11 1180:10 spot 1148:25 spreadsheet 993:14,21,24 1057:17 1107:16 1108:17,19 1111:7 | spreadsheets 1007:2,15 stamp 1049:20 standard 1061:1 1130:12 1184:17 1187:4 standards 1184:16 1184:16 start 996:4 1000:7 1058:1 1060:21 1061:6 1064:4 1091:16 1092:20 1092:21 1094:5 1122:14 1188:18 started 1006:5 1023:6 1064:7 1091:16 1102:3 1139:19 1140:1 starting 1064:4 1098:19 1099:23 state 1020:13 1045:8,12,15 1046:21 1047:10 1047:18 1057:2 1060:10 1096:5 1109:2 1113:8 1161:4 1197:12 1198:1,15 1199:4 1215:6 1221:9,12 statement 1123:23 1198:8,12 statements 1197:19,19 1198:23,25 states 986:1 987:1 1045:22 1113:14 static 1057:18 stating 1028:1 1064:6 stays 1163:9 |
|--|--|---|--|

HIGHLY CONFIDENTIAL

[stenographic - table]

| | | | |
|---|---|--|--|
| stenographic 1116:24 1139:7 stenographically 986:20 steps 1015:13 steve 1102:20 steven 1101:22 stipulation 1221:20 stop 1004:24 1167:5 1203:13 stopped 1098:13 1100:17 1172:24 1174:24 1175:19 1176:3 store 1062:7 stored 1009:5 1012:24 1066:7,8 1082:4 1098:5 1099:2 1121:24 1135:1 stores 1099:11 story 1150:5 straightforward 1176:10,11 1182:24 1213:7 strategic 1214:2 stream 1128:16 1129:6,7,8 1130:1 1130:2,5 1193:1 street 989:10 990:8 991:8 992:7 stretch 1066:21 string 994:4 1010:20 1016:24 1108:12,13 1113:20 1116:15 1116:21 1146:5,6 1147:14 1148:1 structured 1082:6 | struggled 1141:23 subject 994:4 1116:19 1117:4 1145:25 1173:9 submission 1065:25 1066:5 1066:10 submitted 1049:21 subscribed 1220:21 subsection 1087:10,13 substantive 1172:15 subsumed 1122:21 sufficient 1164:6 suggest 1110:10 1183:21 1189:16 1209:18 1217:13 suggested 1180:19 suggesting 1183:20,24 suggests 1022:5 1104:19,23 1114:6 suite 988:12 989:11 990:9,17 991:9 sum 1083:12 summarizing 1121:10 summary 993:17 1102:18,25 super 1096:2 suppose 1157:16 1157:21 1212:12 supposed 1084:15 1159:21 | sure 1000:3 1007:20 1020:25 1021:19,25 1023:17 1037:4 1037:17 1039:9 1039:24 1043:2 1043:23 1047:25 1048:3 1053:1,10 1055:3,6 1056:23 1056:24 1063:13 1071:20 1075:3 1075:12 1076:9 1077:9 1085:23 1088:13,16 1089:16 1092:17 1094:3,17 1107:4 1109:25 1110:9 1124:24,24 1126:5 1140:10 1146:7,16 1149:15 1152:3 1153:5,8,9 1155:7 1155:10 1156:14 1159:13,19 1162:6 1166:15 1179:25 1182:2 1182:20 1183:14 1188:2 1196:3,3,8 1200:13,15 1205:3,25 1214:6 1214:20 surface 1196:23 surname 1171:5 surprised 1149:1 1150:3 surprises 999:16 surprising 1149:22 suspended 1005:18 | sworn 995:12 synonymous 1020:16 system 1003:18 1006:21 1012:11 1012:13,15,17,24 1013:4,5,9,12,19 1013:24 1014:5,8 1014:14,20,22 1016:7 1034:13 1089:15,18 1096:15 1136:1 1184:18 systematically 1186:3 systemic 1186:20 systems 1014:17 1035:17 1037:19 1137:15 1183:13 1197:3 t t 993:11 994:1 1048:7,8,14 1171:5,6 1193:7 1223:3,3 t0 1204:7,8,11,14 1204:22,25 1205:5,6 tab 1108:19 1145:21 table 997:22 1000:6,8,10,11,18 1001:23,25 1002:11 1004:14 1004:15,21 1007:12,16 1008:24 1012:19 1013:10 1018:4 1018:17,18 1019:24 1020:2,5 1021:23 1031:15 |
|---|---|--|--|

HIGHLY CONFIDENTIAL

[table - testify]

| | | | |
|--------------------------|-----------------------|------------------------|--------------------------|
| 1033:12 1034:14 | 1217:1 | 1102:7 1125:9 | 1144:15,25 |
| 1034:21,25 | taken 987:15 | 1131:5 1144:20 | 1145:8,11,17 |
| 1035:3,10 | 1046:16 1101:14 | 1148:21 1161:12 | 1185:14,16 |
| 1043:25 1053:16 | 1102:14 1138:7 | 1164:25,25 | technical 1014:17 |
| 1053:17,24 | 1139:10 1145:7 | 1178:9 1180:7 | technically |
| 1054:4,4,7,16 | 1146:21 1167:13 | tao 1010:25 | 1187:21 |
| 1057:4,7,11,15 | 1181:4,8,13,19,21 | 1011:23,25 | tell 1103:10 |
| 1063:6 1067:5 | 1206:6 1209:8,14 | task 1177:11,23 | 1113:23 1145:24 |
| 1071:5 1072:11 | 1211:18 1212:7 | 1177:25 | 1149:3 1166:17 |
| 1072:21 1085:12 | 1213:12 1214:16 | tasks 1177:21 | 1166:18 1167:5 |
| 1086:2 1087:23 | 1215:2 1220:5 | tatyana 1101:23 | 1184:10 1190:8 |
| 1088:18,25 | talk 997:24 | 1102:22 | 1210:13 |
| 1091:4,5,7,12 | 1008:19 1094:16 | taxonomy | telling 1156:9 |
| 1092:8,11,14 | 1110:11 1129:25 | 1067:17,19 | 1212:10 1213:15 |
| 1093:4 1094:6,9 | 1137:5 1138:22 | 1076:18,21,24 | 1213:22 |
| 1094:11,13,13 | 1139:3 1145:15 | 1077:5 | temporal 1049:23 |
| 1095:7 1096:25 | 1161:19 1170:8 | team 1015:4 | tends 1082:11 |
| 1097:3,5 1099:11 | 1173:22,23,24 | 1016:7,8,10,25 | tens 1109:14 |
| 1099:13,14,17,18 | 1174:2,6,13,18,23 | 1017:17 1024:7 | term 1024:10 |
| 1100:15 | 1175:17 1177:3,5 | 1024:25 1035:24 | 1027:6 1029:9,13 |
| tables 996:8,9,13 | 1178:14 1189:8 | 1036:2 1051:24 | 1053:10 1087:11 |
| 996:19 997:6,7 | 1215:9 1217:2 | 1052:6,7,10,14 | 1122:18 1151:9 |
| 1000:4,5,15,15 | talked 999:24 | 1059:15 1061:18 | 1151:10 |
| 1008:19 1072:16 | 1003:9 1005:21 | 1062:3,6,11,18 | terms 1016:1 |
| 1073:1 1119:5 | 1007:1 1025:11 | 1079:4,11,12,16 | 1070:8 1071:21 |
| 1131:7 | 1041:18 1119:4 | 1085:11 1089:8 | 1105:15 1113:10 |
| tabs 1105:12,19 | 1130:23 1174:15 | 1089:11,14 | 1119:3 1179:19 |
| 1105:21 1106:21 | 1174:21 1175:22 | 1103:23 1104:16 | 1180:8 1181:21 |
| 1106:25 1107:3 | 1175:23 1176:5 | 1117:7,8 1121:12 | 1183:22 1188:6 |
| 1108:18,21,23 | 1176:16,21 | 1142:2,8,22 | 1211:9 1216:6 |
| tabular 1090:10 | 1177:7 1178:16 | 1143:1,8,10,13,16 | testified 997:3 |
| tagable 1190:25 | 1179:7 1181:14 | 1144:12 1145:14 | 998:15 1005:24 |
| 1191:8 | 1190:6,20,24 | 1145:17 1150:4 | 1063:9 1064:3,7 |
| take 1015:14 | 1191:8,23 | 1167:23 1173:13 | 1124:6 1136:10 |
| 1043:24 1046:10 | 1192:25 1210:10 | 1175:5 1177:16 | 1191:10 1199:18 |
| 1090:2 1093:3 | 1212:6 1213:10 | 1203:24,25 | 1208:7 |
| 1109:22 1110:11 | 1214:1 | 1204:9 | testify 1003:8 |
| 1110:19 1113:11 | talking 1000:3 | teams 1016:12 | 1008:7 1116:8 |
| 1138:3 1139:18 | 1001:24 1003:21 | 1061:2 1085:2 | 1142:18 1157:8 |
| 1146:4 1147:9 | 1046:20,23,24 | 1088:8 1133:23 | 1157:15 1164:4,5 |
| 1172:11,19 | 1055:14 1073:8 | 1144:3,7,11,13,14 | 1164:14 1165:5 |

HIGHLY CONFIDENTIAL

[testify - time]

| | | | |
|---------------------------|---------------------------|---------------------|-----------------------------|
| 1188:24 1189:5 | 1109:13 1110:24 | 1061:11 1073:3,7 | 1057:11 1059:17 |
| 1194:19 1195:19 | 1114:5 1118:15 | 1080:4,4 1089:13 | 1059:19 1061:7 |
| 1195:20 1199:3 | 1136:17,18 | 1092:18 1093:12 | 1061:20 1062:9 |
| 1216:25 | 1138:1,2,10,17 | 1093:23 1095:24 | 1081:2 1118:2 |
| testifying 1139:20 | 1139:5 1140:10 | 1103:23 1104:2,9 | 1119:11 1152:20 |
| 1220:8 | 1146:7,11 | 1106:4,8 1107:2 | 1168:25 1169:13 |
| testimony 996:4 | 1147:13 1157:11 | 1107:20 1108:22 | 1176:23 1186:4 |
| 996:19 997:4 | 1172:21 1175:16 | 1109:3 1110:7 | 1186:25 1189:11 |
| 999:23,23,24 | 1216:21 1217:7 | 1112:21 1115:10 | 1190:3 1193:2 |
| 1000:21 1002:15 | thanks 1025:17 | 1118:5,14 | 1194:10,13,25 |
| 1006:1,22 | 1032:11 1090:4 | 1119:11 1127:8 | 1197:8 1199:19 |
| 1013:18 1031:14 | 1148:7,8 | 1128:20 1130:6 | 1200:9 1201:16 |
| 1040:15 1041:14 | theoretically | 1131:5 1132:5 | 1202:1 1207:5,9 |
| 1068:15 1070:19 | 1041:25 | 1138:12 1140:8 | thisisyourdigital... |
| 1071:2,10 | thing 997:2 | 1146:8 1148:19 | 1114:21 |
| 1085:20 1100:10 | 1000:12 1004:8 | 1148:24 1150:2 | thought 1123:6 |
| 1106:2 1111:18 | 1008:18 1042:14 | 1151:5 1152:11 | 1124:5 1157:10 |
| 1116:21 1117:25 | 1125:24 1164:11 | 1156:5 1157:5 | 1175:5 |
| 1118:3 1124:22 | 1181:18,20 | 1160:23 1162:5 | thousands |
| 1138:11,13,24 | 1192:14 | 1162:17 1163:5,8 | 1016:18,18 |
| 1139:25 1140:2 | things 998:5 999:9 | 1163:10,14,22 | 1109:14,15 |
| 1150:21 1164:17 | 999:24 1006:24 | 1164:10,20 | thread 1104:3 |
| 1169:25 1173:17 | 1020:24 1029:25 | 1166:5 1171:6 | three 997:6 |
| 1177:9 1178:16 | 1033:11 1035:3 | 1173:14 1179:5 | 1007:1 1041:10 |
| 1189:1 1195:2 | 1071:1 1112:11 | 1182:11 1186:15 | 1041:13,13 |
| 1205:14 1206:13 | 1117:17 1120:4 | 1186:18 1190:23 | 1090:7,10 1092:5 |
| 1206:16 1208:10 | 1124:11,14,20 | 1195:12,14 | 1105:12,19,21 |
| 1208:24 1209:3 | 1126:14 1131:15 | 1202:15,25 | 1106:25 1107:3 |
| 1217:15 1218:15 | 1152:13 1153:20 | 1205:12 1212:23 | 1108:18,20,23 |
| 1218:16,18 | 1158:2 1176:24 | 1214:5 1217:15 | 1147:20 1156:25 |
| 1219:4 1220:12 | 1203:15 1214:8 | 1217:19,22 | 1214:8 |
| texas 990:18 | think 996:19 | third 988:11 | tickets 1044:12,15 |
| text 1051:16,20 | 997:25 998:9 | 996:21 1001:7,10 | tie 1079:16 |
| 1078:17,17 | 1000:6 1004:5,8 | 1001:14 1007:4 | ties 1163:15 |
| 1082:11 1083:12 | 1007:23,24 | 1012:22 1013:13 | time 996:14 998:1 |
| thank 998:11 | 1013:15 1014:3 | 1014:2 1029:7 | 1000:1 1003:18 |
| 999:20 1000:19 | 1015:22 1027:21 | 1033:8 1039:15 | 1003:20,23 |
| 1001:17 1004:16 | 1030:19 1031:19 | 1040:8,12 | 1005:7,9,11,14,18 |
| 1008:4,15 | 1031:21 1040:15 | 1041:16,19,20,24 | 1011:24 1015:21 |
| 1071:25 1086:21 | 1040:21 1046:23 | 1041:25 1042:3,8 | 1017:7 1019:16 |
| 1103:13,18,19 | 1051:12 1055:15 | 1042:10,12 | 1028:9 1033:23 |

HIGHLY CONFIDENTIAL

[time - tool]

| | | | |
|-------------------|--------------------------|-----------------------|-------------------|
| 1034:8 1044:25 | 1218:24 1220:6 | 1147:1,11 | 1044:13,16,17 |
| 1046:10 1048:22 | 1221:10,18,24 | 1150:21,25 | 1045:1,3,20 |
| 1048:24,25 | 1222:7 | 1156:12 1170:15 | 1053:21 1054:20 |
| 1049:1,2,11,14,15 | timeframe | 1173:18 1195:4 | 1054:23 1055:1,4 |
| 1049:20,20 | 1193:12 | 1207:1 1209:5 | 1055:5,7,12,16 |
| 1052:25 1054:15 | timeout 1109:18 | 1212:2 | 1056:2,6,18 |
| 1054:21 1055:8 | 1109:22 | today's 996:4 | 1057:16,19,21 |
| 1057:11,13,15,19 | times 1055:9 | 1031:13 1071:1 | 1058:4,8,13,24 |
| 1057:23 1062:4 | 1097:17 1115:3 | 1106:2 1110:2,4,9 | 1059:2,4,10,18,21 |
| 1063:25 1064:13 | 1126:11 1188:2 | 1111:18 1113:11 | 1060:2,7,15,16,17 |
| 1066:9 1080:6 | 1205:5 | 1116:21 1177:9 | 1060:18,19,22 |
| 1082:4 1085:8 | tinder 1090:18,18 | told 1181:12 | 1061:1,1,6,10,12 |
| 1091:7 1092:11 | 1090:24,25 | 1209:7 1210:10 | 1061:13,22 |
| 1093:2,18 1095:8 | 1091:15,17 | 1212:6 1213:11 | 1062:6,15,19,23 |
| 1095:13,16,18 | 1092:2,7,10 | 1215:15 1216:14 | 1062:25 1063:8 |
| 1098:4,6 1109:6 | 1093:1 | tool 996:23,25 | 1063:11,16,22 |
| 1110:10,20 | tinder's 1090:22 | 1000:4,5,16 | 1064:3,7,9,11,14 |
| 1116:17 1117:2 | 1092:21,23 | 1001:25 1002:4,6 | 1064:21,24 |
| 1118:8 1120:20 | title 1113:13 | 1002:10 1004:21 | 1065:4,7,17,18,22 |
| 1120:23 1126:11 | titled 1008:25 | 1007:3 1008:19 | 1065:23 1069:15 |
| 1127:8 1131:20 | 1104:12 1111:23 | 1009:6 1011:4,10 | 1069:20 1078:10 |
| 1132:3,18 | titles 1188:6 | 1011:13 1015:10 | 1079:16,18,20,23 |
| 1138:17,22 | tobii 1193:7 | 1015:17,21,24,24 | 1080:1,3,6,8,11 |
| 1142:14,16,19,24 | today 1007:4,18 | 1016:15,21 | 1080:14,16,19,22 |
| 1144:20 1145:15 | 1023:17 1024:1 | 1019:6,10,14,17 | 1080:24 1081:1 |
| 1155:3 1164:14 | 1031:10 1033:16 | 1019:21 1021:15 | 1081:20 1082:5 |
| 1172:19 1174:12 | 1033:21 1038:12 | 1021:17 1022:3,9 | 1082:17 1083:3 |
| 1175:25 1176:22 | 1039:2 1053:12 | 1022:12 1025:7 | 1084:5,21 1085:7 |
| 1177:17 1178:19 | 1053:17,21 | 1025:12,16,20,23 | 1085:15 1086:2 |
| 1183:23 1186:8 | 1054:8,22 | 1025:24 1026:1,1 | 1088:24 1089:24 |
| 1186:11,11 | 1060:15 1062:25 | 1026:8,24 1027:1 | 1090:7,23,24 |
| 1187:4,21 1188:8 | 1063:8 1074:9 | 1027:3,16 1028:7 | 1091:6,9,20,22,24 |
| 1195:18 1198:25 | 1077:15 1080:1 | 1028:14,23 | 1093:3 1097:20 |
| 1199:25 1200:7 | 1082:21,22 | 1030:4,10,13,21 | 1098:3,5,10,12,15 |
| 1202:7,9 1204:4,4 | 1083:24 1090:8 | 1030:22 1031:12 | 1098:18,22 |
| 1204:16 1211:8 | 1093:17 1094:6 | 1031:25 1033:6 | 1099:22,24 |
| 1211:10 1212:15 | 1098:5 1100:16 | 1033:10,14 | 1100:3,7,16,18,21 |
| 1214:23,24 | 1103:5 1116:23 | 1034:12 1035:9 | 1100:24 1119:7,9 |
| 1215:22 1216:3,5 | 1117:25 1120:8 | 1035:10,13 | 1119:12,13,14,14 |
| 1216:9 1217:1,5 | 1121:24 1122:1 | 1037:5,18 1042:2 | 1119:17,18,24 |
| 1217:12,23 | 1123:20 1136:7 | 1042:6 1044:7,10 | 1120:2,3,7,9,12 |

HIGHLY CONFIDENTIAL

[tool - ultimate]

| | | | |
|------------------------|---------------------------|---------------------------|---------------------------|
| 1120:16,19,22 | 1172:17 1174:22 | triggered 1003:21 | ts 1044:22 |
| 1121:3,4,15,23 | 1177:7 1198:5 | true 997:22 | tuesday 986:16 |
| 1122:1,2,7 | 1199:10 1216:25 | 1006:9 1030:14 | 987:18 995:1 |
| 1124:22 1125:1,3 | track 996:25 | 1030:16 1031:1,5 | twice 1096:9 |
| 1125:21,23,25 | 1044:8 1052:21 | 1031:7,9,16 | 1102:22 1146:15 |
| 1126:6,18,21,21 | 1053:3,6,7 | 1032:9 1036:14 | two 996:17 997:2 |
| 1126:22,24 | 1054:16 1057:20 | 1036:23 1038:21 | 1002:3 1007:1 |
| 1127:6,7,12,16,18 | 1059:11,19,22 | 1043:7,8,14,21 | 1010:7 1049:24 |
| 1127:25 1128:2 | 1061:6,14 | 1052:10,13 | 1072:4 1075:13 |
| 1130:20 1131:1,8 | 1118:25 1152:4,9 | 1068:16 1112:22 | 1075:15 1090:8 |
| 1132:7,15,18,22 | 1152:15 1183:25 | 1160:18 1179:16 | 1096:24 1119:10 |
| 1132:25 1133:1,7 | 1184:11,14 | 1209:22 1219:5 | 1124:8 1144:13 |
| 1133:13,15,16,18 | 1186:3 | 1220:12 | 1167:10 1170:13 |
| 1133:22 1134:2 | tracked 1053:21 | truth 1117:8,12,17 | 1190:23 1208:25 |
| 1134:16,17,19,25 | 1053:22 1058:4,8 | 1118:18 1122:7 | 1209:4 1210:10 |
| 1135:7,10 | 1118:8 | 1212:10 1213:15 | 1212:6 1213:10 |
| 1136:10,12,14,20 | tracker 999:6,12 | 1213:22 1215:15 | 1213:24 |
| 1136:25 1186:1,7 | tracking 1099:12 | 1216:14 | type 1008:23 |
| 1186:12,20 | 1116:8 1118:1 | try 1027:18 | 1009:22 1012:6 |
| 1187:13 1188:14 | 1119:3 | 1049:7 1110:16 | 1012:16 1041:15 |
| 1188:17,20 | tracks 1053:13,24 | 1117:21 1118:7 | 1078:11 1123:8 |
| 1206:14,15,24 | 1135:21 1152:12 | 1118:18 1139:1 | 1125:8 1134:14 |
| 1207:2,19 1208:2 | 1155:11 | 1158:1,3 1160:4,5 | 1134:15 1135:9 |
| tools 1062:2,12 | traditional 1149:1 | 1173:22,24 | 1140:7 1195:3 |
| 1118:24 1119:10 | 1149:4,6,23 | 1174:9 1195:25 | types 1045:18 |
| 1119:20 1121:12 | transcribed | 1205:19 | 1071:23 1072:1 |
| 1134:7 1136:13 | 1220:11 | trying 1005:24 | 1081:21 1086:24 |
| top 1047:19,21 | transcript | 1027:19 1031:23 | typically 1010:8 |
| 1103:1 1148:4 | 1156:13 1219:3 | 1057:1 1070:16 | 1018:12 1074:19 |
| 1170:14 | 1220:12,14,16 | 1097:15 1103:21 | 1075:8 1164:13 |
| topic 1135:16 | 1221:6,8,10,13,13 | 1104:1,24 1116:6 | 1177:18 1187:8 |
| 1137:23 1160:21 | 1221:21 1222:2,2 | 1121:2 1123:3,10 | 1201:10 1204:1 |
| 1161:7,9,15 | transition 1172:9 | 1124:6,7 1125:20 | 1205:21 |
| 1162:1,3,15 | 1200:7 1202:5,21 | 1126:4 1134:11 | |
| 1163:10 1169:19 | transmission | 1134:13 1135:20 | u |
| 1169:20,25 | 1169:8 | 1143:1 1147:16 | u 1048:18,24 |
| 1171:17 | treated 1179:13 | 1153:9 1154:2 | 1049:5,9 1050:2 |
| topics 1113:2 | 1180:3 1218:16 | 1155:10 1176:10 | uh 1055:21 1105:7 |
| 1118:4 1138:11 | trick 1124:7 | 1182:23 1184:8 | uii 1075:18 1076:2 |
| 1138:19 1148:15 | tricky 1027:20 | 1195:1 1196:7,8 | 1076:13 |
| 1159:22 1160:6 | | 1196:10,11 | ultimate 1180:17 |
| | | | 1181:21 1212:22 |

HIGHLY CONFIDENTIAL

[ultimately - understanding]

| | | | |
|-----------------------|----------------------|-------------------|-------------------|
| ultimately | 1125:20 1126:5 | 1032:4,8 1033:5,8 | 1084:24 1085:24 |
| 1178:21 1179:9 | 1129:10 1132:16 | 1033:21 1034:1 | 1086:6,14,22 |
| 1210:18 | 1134:10,14 | 1035:11 1036:9 | 1087:2,8,11,14,20 |
| unable 1138:14 | 1135:8,20 1137:5 | 1036:16,22 | 1087:25 1088:6 |
| 1199:3 | 1138:18 1141:11 | 1037:14,23 | 1088:23 1089:6 |
| unavailable | 1142:23 1143:21 | 1038:3,10,14,18 | 1089:17 1092:9 |
| 1029:6 | 1143:21 1150:14 | 1038:24 1039:14 | 1095:6,17 |
| unclear 1151:6 | 1153:6,21 1157:3 | 1039:19 1040:2,6 | 1097:22,23 |
| uncovered | 1166:22 1170:4 | 1040:7 1041:9,12 | 1099:3 1100:12 |
| 1207:22 | 1170:25 1171:20 | 1041:17,19,23 | 1100:25 1101:4 |
| underlying | 1174:9 1180:1 | 1042:9,19,22,25 | 1108:9 1112:2 |
| 1129:23 | 1184:3 1188:19 | 1043:6,10,14,17 | 1114:14 1117:20 |
| underscore | 1190:2 1191:2,21 | 1044:6,12,24 | 1117:22 1119:2,5 |
| 1113:25 | 1195:1,19,20 | 1045:5 1047:1,7 | 1119:9 1120:9,14 |
| underscores | 1200:6,14,15,16 | 1047:12,13,15 | 1121:11,19 |
| 1010:6,8 | 1205:18 1212:19 | 1048:3,10,17,21 | 1122:6 1124:7 |
| understand | 1213:1 1214:7 | 1049:13,19 | 1125:4 1126:10 |
| 998:18 1001:22 | understanding | 1050:3,7,21 | 1126:19,22 |
| 1003:5 1005:25 | 1000:9,17 1001:6 | 1051:15,19,23 | 1127:12,15,16 |
| 1010:15,21 | 1001:9,13 1002:2 | 1052:5,13 1054:6 | 1128:5 1130:11 |
| 1011:1 1020:17 | 1002:12,18 | 1054:8 1056:4,7 | 1131:17,21 |
| 1027:25 1029:9 | 1003:14,23 | 1057:8,9 1058:25 | 1132:1,20,24 |
| 1029:19 1034:17 | 1004:4 1005:8,20 | 1060:14,17,25 | 1133:2,6,11 |
| 1035:2 1040:17 | 1006:7,21 1009:4 | 1061:9,17 1062:5 | 1141:18 1142:5 |
| 1040:19 1047:9 | 1009:9 1010:18 | 1062:17 1063:5 | 1143:13,15 |
| 1050:6 1052:24 | 1010:23 1011:12 | 1063:12 1064:15 | 1144:10 1150:7 |
| 1056:24 1057:2 | 1011:21 1012:2 | 1065:9 1066:2,4 | 1150:13 1151:17 |
| 1064:20 1065:3 | 1012:14,20 | 1066:24 1067:16 | 1151:18 1152:6 |
| 1067:11 1070:7 | 1013:22 1016:1,9 | 1068:5,10,17,22 | 1155:8,18,19 |
| 1070:11,17 | 1017:1,20,23 | 1069:12 1070:3 | 1158:13 1164:21 |
| 1075:24 1076:2 | 1018:5,19 1019:4 | 1070:19 1071:11 | 1167:22 1168:19 |
| 1076:14 1079:9 | 1019:9,22 1020:5 | 1071:18,22 | 1170:4 1171:21 |
| 1079:25 1085:20 | 1021:10,14 | 1072:13,14,19,25 | 1173:3,11,25 |
| 1088:14 1092:18 | 1022:1,16,20 | 1076:19,20,25 | 1174:3,16 |
| 1093:13 1094:17 | 1023:3,7 1024:11 | 1077:3 1078:8,15 | 1176:22 1178:10 |
| 1097:14,15 | 1024:17 1025:14 | 1079:3,12 | 1181:6 1185:21 |
| 1104:2 1105:17 | 1025:21 1026:5 | 1080:17,20 | 1187:20 1191:15 |
| 1105:20 1111:25 | 1026:12 1027:2 | 1081:9,12 | 1192:8 1193:1,6 |
| 1114:2 1118:2 | 1028:3,3 1030:11 | 1082:10,19,22 | 1193:17 1194:11 |
| 1121:9 1122:25 | 1030:18,20 | 1083:4,10,16,19 | 1200:5 1204:8 |
| 1123:4,10 | 1031:2,6,8,15 | 1083:24 1084:14 | 1206:20 1207:1 |

HIGHLY CONFIDENTIAL

[understanding - version]

| | | | |
|--|---|--|---|
| 1208:12 1209:14 1213:2 1214:21 understands 1152:7 1154:4,21 understood 1123:7 1135:19 1156:15 1157:10 1165:20 1166:24 1218:20 undertaken 1065:10 1121:20 1126:20 1168:24 undertook 1141:10 1197:9 1206:21 underway 1102:1 unique 1009:9 uniquely 1011:15 1011:22 united 986:1 987:1 universal 1010:5 universally 1021:15 unix 1048:22,24 1048:25 1049:1,2 1049:3,14,20,20 unpick 1214:9 unrelated 1158:16 update 1203:2,12 1204:3 updated 1020:1,7 1055:12 1191:25 1202:17 updating 1019:22 uploaded 1144:22 url 1105:22 1108:7,14 usage 1099:25 1100:13 | use 1010:8,10 1011:11 1014:19 1014:21 1027:6 1035:4 1054:2 1061:21,22 1062:9,12 1064:19 1065:16 1076:21 1080:19 1084:21 1091:9 1091:21,22,25 1092:13 1118:25 1126:4 1128:9 1151:9 1154:11 1155:24 1158:8 1158:18 1159:23 1160:14,25 1161:2,12,14 1162:20 1163:19 1166:2 1167:19 1186:22 useful 1073:20 user 986:4 987:4 995:9 996:15 1002:8 1022:14 1022:18 1023:1 1024:9,13,21 1025:1 1026:6 1048:11 1073:16 1074:4,12,16,18 1074:23 1075:5,6 1075:9,11,11 1076:8 1120:4 1125:14 1151:12 1152:16,24 1154:21 1186:4,9 1191:11,11 1194:9 1197:13 1198:2,16 1199:6 1199:21 1200:2 1200:10,17,23,25 1201:7,17,23,25 | 1202:11,13,22 1203:6,19,20 1204:5 1221:4 1223:1 user's 1009:24 users 1074:20 1115:3,6,16,18,22 1129:3 1149:7 1151:20 1152:5,7 1153:11,19,24 1154:3,5,6,8 1155:22 1158:7 1191:17 1194:12 1194:24 1197:13 1198:2,17 1199:6 uses 1011:4,13 1044:7 v v 1049:16,25 1171:5 v1 994:4 1116:19 1117:4,9 1118:9 1118:19 1119:1 1121:6 1146:1 v2 1104:13 1117:9 1118:10,19 1121:7 vacuuming 1167:5 vague 1142:1 1153:16 1154:13 1155:2 1183:4,22 1186:14,16 1197:16 1198:19 valid 1033:10 valuable 1215:25 valuations 1174:16 value 1031:3,4 1032:5,6 1041:24 1042:22 1043:1 | 1047:23,25 1048:14 1049:5,8 1051:2 1087:17 1169:21 1170:7,9 1171:15,21 1176:25 1179:14 1180:4 values 1008:23,23 1031:8,11 1036:20,21 1041:15 1043:4 1047:1,4,5,8,14 1047:17 1051:13 1066:10,12 1067:21 1068:11 1070:17,21 1078:13 varela 1116:18 1117:3,7,16,19 1118:12,14,16 1148:2,7,24 1170:13 1180:25 varied 1188:6 various 1073:19 1148:18,18 1201:21,22 1205:5 vatsal 1170:23 1171:3 vc 986:4 987:4 veritext 995:11 1221:7,9,11 versed 1159:12 version 1001:1 1019:15 1120:18 1126:12,17,17 1127:1,14 1128:11,13,13 1129:20,20,22,22 1130:3,6,7,10,12 1131:10,14 |
|--|---|--|---|

HIGHLY CONFIDENTIAL

[version - whitelisting]

| | | | |
|--|---|---|---|
| 1132:10 1137:2,2 1144:22 1147:2,3 1169:5 1180:10 1181:10 1199:25 1200:1,8,8 1201:11 1202:5,5 versions 1128:7 1131:15,19,25 1132:1 1173:16 1173:21 video 986:14 987:19 videoconference 986:14 987:19 988:2 989:2 990:2 991:2 992:2 videographer 992:18 995:5,10 1046:14,17 1101:12,15 1102:13,15 1138:5,8 1139:8 1139:11 1146:19 1146:22 1167:8 1167:11,14 1206:4,7 1218:22 videos 1009:16,19 1009:24 1010:17 1011:20 view 1090:25 1208:24 1212:19 violation 1158:18 visible 1015:16 volume 986:17 993:3 995:7 1219:13 1221:5 1223:2 | wait 1008:13 waived 1221:23 1221:23 waiving 1221:20 walk 1091:8 walked 1092:6 wangdra 991:14 995:24 want 996:4,6 1002:14 1014:18 1014:24 1024:5 1039:25,25 1040:14 1077:12 1092:17 1096:1 1096:23 1103:10 1110:9 1134:12 1135:8 1137:9,13 1138:16 1140:3,6 1146:14,14,15 1155:7 1156:14 1159:12 1162:6 1165:2,13 1167:2 1172:16,19 1189:19 wanted 997:14 998:3,5 999:9 1000:12 1007:3 1015:11 1021:2 1025:5 1035:20 1036:2 1041:5 1059:24 1070:7 1077:23 1090:17 1093:13 1099:16 1113:8 1140:1 1157:10 wants 1167:3 warehouse 1099:2 1099:7,10 washington 986:23 988:13 | way 999:6 1011:7 1020:19 1025:21 1026:16 1030:17 1037:8 1039:1 1043:19 1065:19 1066:16 1082:6 1089:18 1095:22 1096:15 1097:11 1097:23 1122:25 1123:14,15 1124:11 1125:6 1132:16 1133:23 1135:20 1137:16 1153:14 1154:1 1169:20 1179:20 1179:23 1182:20 1186:20 1187:13 1192:21,24 1201:1,12 1208:19 ways 1024:4 1028:19 1029:22 1151:11 1152:16 1173:13 1193:20 1194:3,12 1200:19 1201:21 1201:22 1203:16 1207:2 1208:3 we've 1008:18 1015:20 1027:21 1046:10 1055:14 1090:5,6 1092:6 1092:15 1102:3 1109:20 1119:4 1155:13 1156:18 1158:2 1160:3 1209:24 1217:15 weaver 989:8 web 986:14 987:19 988:2 989:2 990:2 991:2 | 992:2 week 1118:17 weigh 1137:8 welcome 1162:15 went 1107:6 1129:16 1165:23 1185:2 1209:17 whereof 1220:20 white 1192:17 whitelist 1001:5,8 1001:14 1141:7 1141:25 1143:17 1143:21 1144:16 1145:1,5 1150:9 1161:16,23,25 1163:16,18 1180:12,18 1181:4,8 1190:16 1191:2 1193:3 1209:9 1211:19 1212:22 1215:24 whitelisted 1143:2 1148:13 1149:23 1150:4 1167:18 1168:21 1178:13 1179:17 1180:9 1182:14,25 1184:7,12 1185:1 1185:5 1204:12 1207:5,9 1208:7 1215:16 1216:15 whitelisting 1143:4 1150:22 1160:12,15 1161:2 1162:3,20 1162:22,24 1163:10 1166:2 1169:23 1170:11 1171:10,13,16,19 1174:17 1181:24 1183:7 1192:17 |
| w | | | |
| w 988:6 992:7 1050:5,11 1051:2 | | | |

HIGHLY CONFIDENTIAL

[whitelisting - zoom]

| | | | |
|--|--|---|--|
| 1193:18 1205:15 1208:21 1209:15 1210:5 1212:8,20 1213:12 1214:3 1214:15,23,25 1215:3 1216:6 whitelists 1141:15 1141:20 1142:9,9 1142:21 1143:11 1167:25 1190:4 wholly 1040:9,13 wide 1061:3 1123:17,18 1163:8 widely 1125:16 1216:1 willingness 1217:7 wind 1193:13 withdraw 1013:6 1019:19 1020:12 1023:10 1027:6 1030:4 1031:20 1033:18 1034:7 1040:24 1052:9 1052:19 1053:23 1054:13 1056:12 1058:9 1069:18 1126:3 witness 1075:2 1081:2 1113:10 1134:20 1157:15 1164:9,11 1166:12,20 1216:25 1217:4 1217:14 1220:20 1221:13,16 1222:2,5 1223:24 witnesses 1164:14 wonderful 1175:16 | wondering 1169:9 word 1029:8,24 1100:25 words 1010:7 1011:16 work 996:17 1014:17 1033:12 1137:15,20 1139:1,2 1141:19 1142:3 1175:10 1177:19,20 1183:13 1198:22 1201:11 1203:25 1205:11,12 worked 1125:6 1142:5 1145:18 1150:19 1170:16 1184:20 1187:13 working 1077:1,2 1077:6,11,17,21 1077:24 1082:20 1103:23 1142:2 1143:8 1150:13 1150:17 1199:14 works 1050:4 1096:16 1140:8,9 1164:18 1174:8 1201:12 world 1197:2 worth 1173:5 wound 1193:18 wright 988:9 writes 1148:7,24 written 999:11 1117:16 1118:17 1156:3 1187:10 1187:14 1188:11 1188:22 1214:13 1214:24 wrong 1070:20 1092:19 1184:10 | 1197:11,25 1198:14 1199:4 x x 993:1,11 994:1 1048:24 1051:21 1056:6,8,9,11,13 1056:15,19,20 1057:8,13 1059:4 1063:3,9 1220:16 1222:1 xfn 1023:4,5,7,11 1023:14,16,18,24 1023:25 1024:3,8 1024:12,25 1025:3,6 1033:7,9 1033:16 1034:2 1039:5,6 1042:17 1042:21 1043:9 1043:12,15,16,18 1043:20,24 1044:1,7,19 1045:11,20,24 1046:2,4 1047:11 1048:13,23 1049:22 1050:15 1050:23 1061:10 1061:13 1064:10 1064:11,16,23 1065:4,25 1066:6 1066:10 1082:21 1082:23 1083:22 1083:25 1084:10 1084:25 xlsx 1113:16 y y 1065:24 yeah 999:1 1000:3 1004:13 1008:8 1037:17 1047:4 1051:10 1055:5 | 1068:3 1077:9,12 1078:2 1086:11 1087:5 1102:3,11 1103:23 1106:8 1113:6 1124:5 1134:5 1136:9 1139:21 1152:2 1156:18,20,23 1157:4 1158:1 1159:9,17 1160:9 1163:14,21 1164:12 1165:25 1167:2 1169:6 1175:13,15 1177:15 1196:6,9 1196:13 1218:4 1218:10 year 1192:7 1202:4,12 years 1077:11 1117:16 yesterday 996:6,9 996:20 998:7 999:25 1000:3,22 1004:7 1005:22 1006:23 1007:1 1007:15 1020:4 1090:8 1091:11 1093:17 yesterday's 1000:21 1002:14 yup 1102:5 z z 1066:22 1067:21 1067:25 1069:21 1070:8 1072:10 1072:20 zone 1162:11 zoom 986:12 1004:19 |
|--|--|---|--|

Federal Rules of Civil Procedure

Rule 30

(e) Review By the Witness; Changes.

(1) Review; Statement of Changes. On request by the deponent or a party before the deposition is completed, the deponent must be allowed 30 days after being notified by the officer that the transcript or recording is available in which:

(A) to review the transcript or recording; and

(B) if there are changes in form or substance, to sign a statement listing the changes and the reasons for making them.

(2) Changes Indicated in the Officer's Certificate. The officer must note in the certificate prescribed by Rule 30(f)(1) whether a review was requested and, if so, must attach any changes the deponent makes during the 30-day period.

DISCLAIMER: THE FOREGOING FEDERAL PROCEDURE RULES ARE PROVIDED FOR INFORMATIONAL PURPOSES ONLY.

THE ABOVE RULES ARE CURRENT AS OF APRIL 1, 2019. PLEASE REFER TO THE APPLICABLE FEDERAL RULES OF CIVIL PROCEDURE FOR UP-TO-DATE INFORMATION.

VERITEXT LEGAL SOLUTIONS
COMPANY CERTIFICATE AND DISCLOSURE STATEMENT

Veritext Legal Solutions represents that the foregoing transcript is a true, correct and complete transcript of the colloquies, questions and answers as submitted by the court reporter. Veritext Legal Solutions further represents that the attached exhibits, if any, are true, correct and complete documents as submitted by the court reporter and/or attorneys in relation to this deposition and that the documents were processed in accordance with our litigation support and production standards.

Veritext Legal Solutions is committed to maintaining the confidentiality of client and witness information, in accordance with the regulations promulgated under the Health Insurance Portability and Accountability Act (HIPAA), as amended with respect to protected health information and the Gramm-Leach-Bliley Act, as amended, with respect to Personally Identifiable Information (PII). Physical transcripts and exhibits are managed under strict facility and personnel access controls. Electronic files of documents are stored in encrypted form and are transmitted in an encrypted fashion to authenticated parties who are permitted to access the material. Our data is hosted in a Tier 4 SSAE 16 certified facility.

Veritext Legal Solutions complies with all federal and State regulations with respect to the provision of court reporting services, and maintains its neutrality and independence regardless of relationship or the financial outcome of any litigation. Veritext requires adherence to the foregoing professional and ethical standards from all of its subcontractors in their independent contractor agreements.

Inquiries about Veritext Legal Solutions' confidentiality and security policies and practices should be directed to Veritext's Client Services Associates indicated on the cover of this document or at www.veritext.com.